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UNIVERSITY OF TORONTO

President's Report

FOR THE YEAR ENDING
30TH JUNE, 1936

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PRESIDENT'S REPORT

1935-1936

To the Governors of the University of Toronto:

GENTLEMEN:

I have the honour to present to you, as required by statute, a report on the academic work of the University and of University College for the twelve months ending on the 30th of June, 1936:

INTRODUCTION

The detailed reports of the different Faculties and of University College are appended. I make reference only to some of the main features of the year's record. In submitting this report I am more than ever impressed with the magnitude, variety and importance of the work carried on in this University. The University is large in point of attendance, in number of buildings, and in the membership of its teaching staff. It seems that both the quality and the volume of its manifold services grow steadily greater year by year. The picture I have to paint is not unattractive. It is the portrayal of an institution throbbing with vitality, moving forward with good cheer and good hope. If in the future numbers decrease, it shall be our effort to secure the continuance of high quality. For this general progress the University is chiefly indebted to the fine idealism and cordial co-operation of the staff, both administrative and academic. To them; to all alumni and friends who have shewn themselves helpful; to the loyal and self-disciplined body of students; to the Chairman and members of the Board of Governors, who have at all times given wise counsel, practical aid, and timely encouragement, and to the Government which has largely provided for our financial needs, I offer my heartfelt gratitude.

ATTENDANCE

The total number of students enrolled was 7948, of whom 4979 were men and 2969 women; 7409 being registered in the colleges and faculties and 539 in the departments. The number of students proceeding to degrees was 6453 and to diplomas 909. Of the students in attendance 3919 came from Toronto, and 3263 from other parts of the Province of Ontario. Every county is represented. There has been an increase in registration of 237.

The dominant aim of the University is not so much more students as better students; not so much more courses of instruction as better instruction. A university situated in a large city in a populous province inevitably will have a large number of students and must provide many courses of study; but the University will always seek to avoid the dangers of mediocrity in the quality of the students admitted and in the quality of the instruction given. The ideal of quality in higher education must remain the true university idea. Numbers may have to be sacrificed to quality.

The proportion of young people who seek a university education is largely determined, so the British Universities Grants Committee think, by fashion and by economic conditions. In Great Britain one person in every 885 goes for full-time study to a university; in Italy one in 808; in Germany one in 604; in France one in 480; in the United States one in 125; in this province probably one in 300.

THE STAFF

The total staff of the University and University College numbered 875, of whom 119 were professors, 69 associate professors, 82 assistant professors, 216 lecturers, associates (in medicine and dentistry) and instructors in the College of Education, 2 directors, 387 demonstrators, fellows and instructors with sessional appointments. In the Federated Colleges there are 112. The total number in the complete staff is 987.

During the past year death has removed several members and former members of our staff:

F. B. Allan, M.A., Ph.D., dean, faculty of arts, and professor of organic chemistry; Wallace Seccombe, D.D.S., dean and professor, faculty of dentistry; Louis Allen, M.A., Ph.D. (Chic.), associate professor, French; H. S. McKellar, B.A., associate professor, French; Sir John McLennan, Ph.D., D.Sc. (Man. Liv.), LL.D., professor emeritus, faculty of arts; G. Chambers, B.A., M.B., formerly associate professor, clinical medicine; Donald M. Barton, chief gymnasium instructor.

Their services to the University are briefly recorded.

The whole University suffered a severe loss in the death on the 9th of January of Professor Francis Barclay Allan, dean of the faculty of arts. He had served as dean for only a year when an attack of illness laid him low. For more than eight months he struggled toward recovery amid several recurrences of his trouble, but finally succumbed to an acute relapse.

Like many another of the intellectual leaders of this country he came from the farm, and taught school to enable him to attend the University. He graduated from the University of Toronto in 1893, obtaining in due course his M.A. and Ph.D. degrees. In 1895 he was appointed a fellow in chemistry under Professor W. H. Pike and for forty consecutive years served on the staff of this University. He became ultimately professor of organic chemistry, and in 1934 dean of the faculty of arts, in succession to Dr. A. T. DeLury. He was a lucid teacher, a stimulating director of research, a friend and sympathetic helper of his students.

He was an ideal member of University Councils (arts and medicine) and of committees. His knowledge, good judgment, conciliatory manner, and absolute unselfishness made his advice invaluable. His services to the Department of Education were highly appreciated and maintained a close and happy connection between the Department and the University.

As he possessed those great fundamentals of character, which men most prize—straightness, decency, kindness—it is little wonder that he won the confidence and good will of his colleagues and students.

Under his chairmanship the Committee on University Extension (of which Mr. W. J. Dunlop is the energetic director) grew apace and ventured on many new and needed undertakings, which have brought the work and influence of this University into every section of the Province.

Dr. Louis Allen, a Canadian by birth, came to us in 1922 from the University of Chicago, as an assistant professor in the department of French, and became an associate professor in 1926. He was an authority on the history of the French language. He was widely versed in the Indian languages and dialects of this continent, and was himself a master of many spoken languages, including Russian. After a visit to Russia in the summer of 1935 he came with his wife to her home at Béziers in France and unhappily succumbed after an operation on the 27th of August. His knowledge of philology and of the development of human speech gave him notable prestige among scholars. He was a stimulating and incisive teacher.

Later in the academic year, on the 11th of April, 1936, the department of French suffered another loss in the death of Professor Herbert Sutherland Mc-

Kellar. A graduate of this University in 1893, he taught in the High Schools and Collegiate Institutes of Kemptville, Chatham, Owen Sound and London, before his appointment in 1917 as a lecturer in University College. He became an assistant professor in 1921 and an associate professor in 1927. He was an extremely good teacher, and made much use of phonetics in his methods of guiding students along the path of accurate pronounciation. He was a favourite lecturer in the Department of University Extension.

After an illness which lasted since the close of the War and which affected him both in body and in mind, Dr. Graham Chambers passed away on the 27th of March. He obtained from this University his B.A. degree in 1886 and his M.B. degree in 1889. He taught as a fellow in chemistry from 1887 to 1890, and in medicine and clinical medicine as demonstrator, lecturer, associate and associate professor from 1900 till he went overseas as a Lieutenant-Colonel in the University Base Hospital. He had a distinguished record at Saloniki, Orpington Hospital (as head of the medical staff) and at Shorncliffe (Moor Barracks Hospital). His health failed on his return to Canada and he lived in retirement till his death. His devoted wife who nursed him all these years, herself passed on to join him a few months later. Dr. Chambers had a winsome personality and exercised a fine influence on his students.

Mr. Donald M. Barton, chief gymnasium instructor for the past sixteen years died on November 4th, 1935, after a short illness. When Hart House was opened in 1919 Mr. Barton was appointed to the athletic staff and since 1923 he has been the director of all gymnasium activities. His relations with the successive generations of students who came under his charge were happy and helpful. By precept and example he taught how to keep the body fit and to use it as an efficient instrument of the mind and soul.

With startling suddenness on the 9th of October, 1935, Sir John Cunningham McLennan, K.B.E., F.R.S., passed away on a train in France as he was returning to England from a meeting of the International Committee of Weights and Measures. He had retired in 1932 from his professorship of physics in this University and from the headship of the great physics laboratory, which now bears his name; but he paid a yearly visit to us and gave a course of lectures to the students in physics, bringing to them the latest European researches and results. A service was held in Convocation Hall on October 13th in his honoured memory. After graduating from this University in 1892 he became a member of the staff and advanced from stage to stage of the academic hierarchy. He passed successively through the ranks of demonstrator, associate professor, professor and director of the physics laboratory and Dean of the School of Graduate Studies. He won a national and international reputation. Though many posts with greater remuneration were offered to him he chose to remain in Toronto. He was one of the founders of the Alumni Association of this University. One of the visible results of the efforts of this group of graduates (among whom McLennan was the driving force) was the erection of our Convocation Hall. Catching the modern spirit of scientific research from such men in England as Oliver Lodge and J. J. Thomson, he did as much as any one man to infuse the spirit of research into this whole institution. In four fields he carried on his investigations—radioactivity and cosmic rays; low temperature and the liquefaction of helium; the conductivity of metals at low temperature; and spectroscopy. His discovery of the green line in the light of the aurora which occurs at great height, and his proof that this originates from the electrical discharge in oxygen taking place at great altitude won for him in 1928 the gold medal of the year from the Royal Society and the Bakerian lectureship. To the Royal Canadian Institute and to the National Research Council he gave long and valuable service. His last years were devoted to the therapeutic use of x-rays and radium for the treatment of malignant tumours. During the Great War he was attached to the Admiralty. His work on the detection of submarines was of great value in reducing this menace to British shipping. In him this

University had a loyal son, an arousing teacher, an untiring worker, a scientist of world-wide fame, and a brilliant leader in research. His influence on his students, many of whom are now themselves teachers, will live on in this University and throughout the world.

The Dean of the Faculty of Dentistry, Dr. Wallace Seccombe, succumbed on the 16th of January to a long-continued attack of some form of anaemia. He courageously carried on his work almost up to the day of his death. A graduate of the School of the Royal College of Dental Surgeons of Ontario in 1900, he carried on private practice for some years, till he was appointed secretary of the Royal College and became a member of the staff of the School. His special department of teaching was preventive dentistry. Dr. Seccombe was one of the leaders in the movement which led the School of Dentistry to become in 1925 the Faculty of Dentistry in the University of Toronto, and was its first dean. Under this arrangement the Royal College of Dental Surgeons resigned to the University its teaching functions, though it retained its licensing powers; and on the other hand, the teaching resources of the University became available to the dental students.

The result of these changes have abundantly justified the wisdom of Dr. Seccombe and his associates. The Carnegie Corporation financed a survey of the curricula of the various dental schools of the continent, and of the Commission who made the survey Dr. Seccombe had the honour of being chosen as chairman. He founded and edited for twenty-five years "Oral Health"—a magazine devoted to the science and practice of dentistry. As an authority on dental education his advice was sought throughout this continent.

The following members of the staff retired under the age limit:

M. A. Mackenzie, M.A. (Tor. Camb.), professor of mathematics; G. H. Needler, B.A., Ph.D. (Leip.), professor of German; T. R. Rosebrugh, M.A., professor of electrical engineering; F. A. Clarkson, M.B., assistant professor, clinical medicine.

The inexorable flight of time and the pension regulations of the University compel the retirement even of highly efficient instructors from the teaching staff. Those retiring this year have given the whole service of their active manhood to this University.

Michael Alexander Mackenzie, a son of the Ven. Archdeacon Mackenzie of Brantford, graduated from Trinity College, Toronto, and then proceeded to Selwyn College, in the University of Cambridge. On his return to Canada he became professor of mathematics in Trinity College, Toronto, in 1895. In 1904 he was made an associate professor of mathematics in the University of Toronto, and in 1914 a full professor. His special field of work was actuarial science. He was a fellow of the Institute of Actuaries of England. He was constantly consulted by governments and institutions on the subject of pensions, and served as a vice-president of the Teachers Insurance and Annuity Association of America (under the auspices of the Carnegie Corporation) since its foundation. Not only was he an accurate and helpful lecturer, but by his membership in the Athletic Directorate of this University, and by his deep interest in all intercollegiate sport he exercised a beneficent influence on general university athletics, and was ever a champion of clean, amateur sport. The Athletic Directorate of the University of Toronto has erected a bronze tablet in a corridor of Hart House to commemorate his long and helpful services to sound athletics.

George Henry Needler graduated as a B.A. from this University in 1886, and as a Ph.D. from the University of Leipzig in 1890. In the following year, 1891, he was appointed to the staff of University College as a fellow in German and passed through the ranks of lecturer and associate professor to the rank of professor and head of the department. In conjunction with Professor A. E. Lang of Victoria College he wrote the High School German Grammar in use in our secondary schools. He was a veteran of the North West Rebellion of 1885,

and was Officer Commanding the Overseas Training Company of the C.O.T.C. from 1916-18. He was an accurate scholar, and a constant advocate of a high standard of entrance into the University.

Thomas Reeve Rosebrugh received from this University the degree of B.A. in 1887 and of M.A. in 1893 and D.Sc. *honoris causa* in 1936. In 1890 he joined the staff of "The School of Practical Science" and in 1901 became a full professor. For thirty-five years he was head of the department of electrical engineering. Quiet yet painstaking he left his imprint on the four thousand students who passed through the Faculty of Applied Science in his time. He has been a pioneer and leader in the field of electrical engineering. His contributions to the theory of long distance electrical transmission and to allied subjects have been of great practical value, and have won him a high place among the authorities in electrical literature.

Dr. Frederick Arnold Clarkson, assistant professor of medicine was in charge of the university medical service in the Western Hospital for the past thirteen years. Since 1902 he has been on our medical staff, serving as assistant demonstrator, demonstrator, clinician, associate, and assistant professor. He has been fully co-operative with his colleagues and a teacher of clarity and good judgment.

To these members of the staff whose life energies have been built into the educational fabric and the student life of this University, we offer our heartfelt thanks. We hope that in their life of retirement they will still find opportunities of continued investigation and of public service.

The following resigned their positions:

J. G. FitzGerald, M.D., LL.D. (Qu.), dean, faculty of medicine; W. A. Parks, B.A., Ph.D., LL.D., F.R.S., professor of geology; A. E. Webster, M.D., D.D.S. (Chic.), M.D.S., LL.D., professor of operative dentistry; Miss A. L. Laird, M.Sc., professor of household science; M. P. West, M.A., D.Ph. (Ox.), professor of educational research, Ontario College of Education; Mrs. M. M. Kirkwood, M.A., Ph.D., assistant professor of English.

After a long illness, from which there seemed no prospect of complete recovery, Professor W. A. Parks, head of the department of geology and palaeontology, resigned his chair at the end of the academic year. He graduated from this University in 1892 with honours in Natural Science, winning the Daniel Wilson scholarship and the McMurrich silver medal. He joined the staff of the University in 1893 as a fellow in geology, and was one of the earliest to receive the degree of Ph.D. from it. He rose through every academic step from fellow to full professor and head of the department. Practically his whole life has been devoted to the service of his university and of his department. His teaching was admirable—always clear and stimulating. His real monument is the Museum of Palaeontology in the Royal Ontario Museum, which contains his remarkable collection of dinosaurs—one of the finest in the world. In 1934 his achievement in the field of geology gained for him one of the "blue ribbons" of science, a fellowship in the Royal Society. Last spring the Senate of this University conferred on him by special statute the degree of LL.D. *honoris causa*. Like his brother-in-law, Sir John McLennan, he was both scientist and Christian; to him the long story of the rocks witnessed to the wisdom and patience of a personal and living God.

For some years Dr. Albert Edward Webster had been in failing health, but he continued to come to his laboratory up to the end of the academic year, when his resignation took effect. For forty-three years he had served as a teacher of dentistry. Trained both as a medical practitioner and as a dentist, he was well fitted to give a thorough training to his students both in the theory and in the practice of dentistry. He was professor first of orthodontia and then of operative dentistry from 1906 to 1936. He was Dean of the School of Dentistry under the Royal College of Dental Surgeons of Ontario from 1915 to 1923, when

he became honorary dean and continued his teaching work as professor. As editor of the "Dominion Dental Journal" and as author of "A Manual for Dental Assistants" he was widely known throughout the ranks of his profession. His attainments were recognised by his election as a member or honorary member of scientific dental societies in Canada, Great Britain, the United States and France. In 1932 on the occasion of our international gathering of dentists in Toronto, this University conferred on him its honorary degree of doctor of laws; and in the same year he was awarded the William Jarvie Fellowship medal, given annually by the dentists of the State of New York for research. Few men were more respected and beloved by the members of his own profession.

Before this report could be printed both Professor Parks and Professor Webster have passed away.

Miss Annie L. Laird, Master of Science of Drexel Institute, who from its inception has been in charge of the department of household science, resigned this year in order that she might have opportunity for travel and a well-earned rest. The remarkable development of this department, founded by the generosity of the late Mrs. Massey Treble, is in large measure due to her foresight, energy and good judgment. Her old students are now filling posts of responsibility over this continent, in schools, hospitals, and public institutions. She leaves a living monument behind her.

Dr. Michael West, an eminent student of linguistics and philology, resigned from his research chair in the Ontario College of Education, where for the past two years he has investigated the subject of vocabularies in relation to learning and speaking foreign languages. The results of these investigations have been published. This valuable research was made possible by the generous help of the Carnegie Corporation, to which once more we offer our sincere thanks. Dr. West returned to England and is now connected with the Institute of Education in the University of London.

Dr. C. B. Weld, assistant professor of physiology, left us to become professor of physiology in Dalhousie University, in succession to Dr. E. W. H. Cruickshank, who has gone to the chair of physiology in Aberdeen University, Scotland. Dr. Weld graduated in arts in the University of British Columbia and in medicine in the University of Toronto. He did valuable research work in the Connaught Laboratories, and served as physiologist to the Hospital for Sick Children. We follow with best wishes those members of our staff who have gone to other universities to undertake a larger work. They are living links of understanding and goodwill among our Canadian Universities.

Mrs. Kirkwood, M.A., Ph.D., assistant professor of English in University College has become Dean of Women and an assistant professor of English in Trinity College. She was a writer of distinction and an excellent teacher.

The Board of Governors has suffered a loss in the unexpected death of Mr. W. R. Percival Parker, K.C. He contracted a cold at the funeral of a friend, and this speedily developed into pneumonia. Although he was but recently appointed to the Board, he had already shewn great interest in its work, particularly in the financial management of the University, and in its relation to the Conservatory of Music. Of this latter institution he had become a Governor.

It became necessary to appoint three deans. Dr. F. B. Allan, the Dean of Arts, died during the year. Professor Brett, the Dean of the School of Graduate Studies, very efficiently carried on the work of the Dean of Arts in addition to his own heavy duties, till the end of the term, when Professor S. Beatty, head of the department of mathematics, was appointed Dean of Arts. Dean Beatty has not only had long administrative experience in the University, but has also been in close touch with the Provincial Department of Education and the work of the secondary schools.

Dean Seccombe of the Faculty of Dentistry, passed away during his term of office, and after much consideration Dr. A. D. A. Mason, professor of operative

dentistry, was appointed to succeed him. He has had an intimate knowledge of the teaching work of the Faculty and of the general needs of the dental profession.

Professor J. G. FitzGerald resigned his deanship of Medicine in order to undertake for the Rockefeller Foundation a survey of the methods of teaching preventive medicine and hygiene in the various colleges on this continent and in Europe. This survey will probably take a year. We have therefore granted Dr. FitzGerald leave of absence from his teaching work in this University till the first of October, 1937. Then we hope to welcome him back to his regular duties. During his absence Dr. Robert Defries and Dr. C. H. Best will have charge of the School of Hygiene and the Connaught Laboratories. The choice of Dr. FitzGerald for this important task is a fine recognition of his leadership in the field of preventive medicine and brings no small distinction to his own university.

To succeed Dr. FitzGerald as Dean of the Faculty of Medicine, Dr. W. E. Gallie, F.R.C.S. (Eng.) has been appointed. He is the distinguished head of the department of surgery, a Hunterian Lecturer in England, and one of the leading surgeons of the world.

These three appointments to academic posts of pivotal importance in the University have met with the heartiest approval of their colleagues. In an institution so large and so complicated as is this University much of the efficiency and smooth running of the whole depends on the character and administrative ability of the deans.

We welcome back to our staff Professor Barker Fairley, who succeeds Dr. Needler as head of the department of German. For some years he taught in this department in Toronto until he was called to be professor of German in the University of Manchester. His volume on "Goethe", issued in connection with that great poet's centenary, was a notable and scholarly work on the interpretation and appraisement of Goethe as a literary figure in Europe. He is an M.A. of both Leeds and Manchester and a Ph.D. of the University of Jena. Under him Germanic studies, both on the linguistic and the literary side, will be competently and progressively directed.

After long and careful inquiry a successor to Miss Laird in the department of household science was found in the person of Miss Jessie Brodie, B.A. of this University, A.M. and Ph.D. of Columbia University. After taking the professional teacher's course in the Faculty of Education, she taught in Northern Ontario, and then proceeded to Columbia, where she studied under Dr. Henry C. Sherman, the Mitchell Professor of Chemistry in that University and the author of such standard books as "The Chemistry of Food and Nutrition" and "Food and Health". For the last six years she has taught in the George Peabody College for Teachers in Nashville, Tennessee. She returns to her native land and her *Alma Mater* with a wide experience and ripened judgment, well fitted to maintain and enrich the fine traditions of this department and to link them in sympathy with the various nutrition enterprises carried on in this city and province.

The department of mathematics has been strengthened by the addition of Mr. H. S. M. Coxeter, B.A. and Ph.D. of the University of Cambridge, and a former fellow of Trinity College, Cambridge, as an assistant professor. His appointment fairly well rounds out the teaching personnel in mathematics. Professor Coxeter is no stranger to us. While he was at the Institute of Advanced Studies in Princeton, New Jersey, one of the chief centres of mathematical research in the world, he was a visiting lecturer here and won golden opinions by his lectures.

By the aid of a Carnegie Fellowship we are able to have the services of Dr. Peter Brieger in the department of fine art. Dr. Brieger is a Ph.D. of the University of Breslau, and has more recently been on the staff of the Courtauld Institute of Fine Art in the University of London. He comes with the high endorsation of Professor W. G. Constable, Director of the Institute, and Slade

Professor of Fine Art in the University of Cambridge. Dr. Brieger is bringing out an architectural atlas of Mediaeval Europe, to be published by the Oxford University Press. I am sure that his work as an assistant to Professor Alford will be of the most stimulating and helpful character.

I regret that at the end of the term two of our senior professors have been laid aside by illness—Professor W. R. Taylor of the department of Semitic languages in University College, and Professor T. L. Walker, head of the department of mineralogy. Arrangements will be made for the carrying on of their lectures for the coming year. It is our sincere hope that they both may be able to return to their work after this period of enforced rest.

Professor Peter Sandiford was special lecturer in education in the University of California for the last half of the year. He made a real contribution to the academic life of that University and will return to carry on his work in the Ontario College of Education with a wider experience and more practical knowledge of the educational problems of our American neighbours.

The best conception of a university is probably the ancient one of a society of scholars bound together for the purpose of preserving, imparting, increasing and enjoying knowledge. If this is true, then the chief asset of the university on the side of its equipment is its staff. This group of scholars stimulate the students by teaching and example; they publish the results of their research and so add to the store of human wisdom; they arouse even the ordinary undergraduate, and they cultivate the best and most advanced intellects. In this way and to this extent they make their university great.

For university progress and achievement no factor is so important as that of personnel—the competence of the men and women who constitute the administrative and teaching staff. When vacancies occur they must be filled with the utmost care and discrimination. No college can be better than its faculty.

Of the members of our own staff we are with good reason proud. They are loyal and competent. The list of their publications reveals the character of the research work which is being carried on in the various departments; good teaching and good investigation are not incompatible; rather are they complementary. So far as the undergraduates are concerned good teaching is a necessity on the part of the staff. We are deeply grateful to the Government of the Province for that increase in our annual grant which made it possible to reduce by half the cut in salaries made inevitable by restricted revenues; and we trust that the day will soon come when our encouraging exhortations and promises especially to the junior members of our staff will pass into realities, and salaries will be restored to their former level. In Great Britain in spite of the rigid economy enforced by the great depression, the grants to Universities from the Imperial Treasury were never curtailed.

I am glad to note that throughout the University the advisory relation between teacher and student is being increasingly recognised. The members of the teaching staff are always willing and ready to give personal counsel and guidance to their scholars. This species of tutorial system serves both an intellectual and a moral purpose. The relation of teacher and pupil passes into that of older friend and younger friend.

Leave of absence was granted to:

For the session: F. B. Allan, M.A., Ph.D., dean, faculty of arts, and professor of organic chemistry; W. A. Parks, B.A., Ph.D., professor of geology; J. W. Bain, B.A.Sc., professor of chemical engineering; M. P. West, M.A., D.Ph. (Ox.), professor of educational research; Miss G. R. F. Rose, M.A., lecturer in household science.

For one term: G. Norwood, M.A. (Camb.), D.Litt. (Wales), director of classical studies; P. Sandiford, M.Sc. (Man.), Ph.D. (Col.), director of educational research, Ontario College of Education; A. S. P. Woodhouse, B.A., A.M. (Har.), assistant professor of English.

The following new appointments and promotions were made during the year:

In the Faculty of Arts:—Appointments: R. K. Young, B.A., Ph.D. (Cal.), Director of the David Dunlap Observatory; E. S. Moore, M.A., Ph.D. (Chic.), acting head of the department of geology; Griffith Taylor, B.E. (Syd.), B.A. (Camb.), D.Sc. (Syd.), professor of geography; R. Brauer, Ph.D. (Berlin), assistant professor of mathematics; H. L. Humphreys, A.B. (Mich.), A.M. (Prin.), Ph.D. (Col.), assistant professor of French; M. F. Crawford, B.A. (West.), M.A., lecturer in physics; Miss E. J. Allin, M.A., Ph.D., lecturer in physics; G. E. Britnell, B.A. (Sask.), M.A., lecturer in political economy; C. B. Macpherson, B.A., M.Sc. (Lond.), lecturer in political economy; E. R. Hopkins, B.A. (Tor. Ox.), LL.B. (Sask.), lecturer in law; J. A. Houpert, M.A. (Ill.); Miss M. Macdonald, B.A. (Laval), Dip. de l'U. Paris, lecturers in French; F. S. Haines, lecturer in fine art; K. G. Gray, honorary lecturer in law; V. W. Bladen, M.A. (Ox.), supervisor of studies in political economy; C. W. M. Hart, M.A. (Syd.), supervisor of studies in sociology.

Promotions:—G. W. Brown, M.A., Ph.D. (Chic.), from an associate-professorship to a professorship in history; H. J. Davis, M.A. (Ox.), from an associate-professor to a professorship in English; J. F. Macdonald, M.A. (Qu.), from an associate-professorship to a professorship in English; F. R. Lorriman, M.A., Ph.D., from an assistant-professorship to an associate-professorship in chemistry; E. W. Macdonald, B.A. (Qu.), from an assistant-professorship to an associate-professorship in philosophy; M. D. C. Tait, B.A. (Ox.), from an assistant-professorship to an associate-professorship in Greek; A. S. P. Woodhouse, B.A., A.M. (Harv.), from an assistant-professorship to an associate-professorship in English; H. Grayson Smith, B.A., Ph.D., from a lectureship to an assistant-professorship in physics; C. Barnes, M.Sc. (Leeds), Ph.D., from a lectureship to an assistant-professorship in physics; F. E. Beamish, M.A. (McM.), from a lectureship to an assistant-professorship in chemistry; G. P. Cosgrave, M.A. (Man.), Ph.D., from a lectureship to an assistant-professorship in psychology; Miss M. C. Needler, M.A., Ph.D. (Chic.), from a lectureship to an assistant-professorship in ancient history; N. J. Endicott, B.A., B.Litt. (Ox.), from a lectureship to an assistant-professorship in English; F. V. Winnett, M.A., Ph.D., from a lectureship to an assistant-professorship in Semitics.

In the Faculty of Medicine:—Appointments: A. Hunter, M.A., B.Sc., M.B. (Edin.), professor of pathological chemistry; H. J. Shields, B.A., M.B., associate in anaesthesia; G. L. Duff, M.A., M.D., Ph.D., lecturer in pathology; M. H. Roepke, B.A. (Kans.), M.S. (Ill.), M.A. (Tor.), Ph.D. (Minn.), lecturer in pharmacology; E. Fidlar, B.A., M.D., lecturer in physiology.

Promotions:—Alan Brown, M.D., from an associate-professorship to a professorship in paediatrics; William A. Scott, B.A. (McM.), M.B., from an assistant-professorship to a professorship in obstetrics and gynaecology; G. E. Richards, M.B., from an associate-professorship to a professorship in radiology; G. M. Biggs, M.B., from an associateship to an associate-professorship in oto-laryngology; R. K. George, B.A., M.B., D.P.H., from a lectureship to an assistant-professorship in anatomy; E. T. Waters, B.Sc., Ph.D. (Wales), from a lectureship to an assistant-professorship in physiology; C. B. Weld, M.A. (B.C.), M.D., from a lectureship to an assistant-professorship in physiology; M. H. Brown, M.D., B.Sc. (Med.), from a lectureship to an assistant-professorship in hygiene and preventive medicine; H. B. VanWyck, B.A., M.B., from a senior demonstratorship to an assistant-professorship in obstetrics and gynaecology; E. A. Morgan, M.B., from a senior demonstratorship to an associateship in paediatrics; G. R. Pirie, M.B., from a senior demonstratorship to an associateship in paediatrics; A. A. Campbell, M.B., from a senior demonstratorship to an associateship in oto-laryngology.

In the Faculty of Applied Science:—Promotions: B. de F. Bayly, B.A.Sc., from a lectureship to an assistant-professorship in electrical engineering.

In the Faculty of Household Science:—Appointments: Miss E. W. Park,

M.A., assistant professor; Miss M. R. McKellar, M.A., lecturer; Miss J. S. Roberts, lecturer.

In the Faculty of Dentistry:—Appointment: A. D. A. Mason, D.D.S., dean.

In the School of Nursing:—Appointments: Miss M. B. Millman, B.A., lecturer in public health nursing; Miss E. M. Stuart, lecturer in nursing.

In the Department of Social Science:—Appointment: A. E. Grauer, B.A. (B.C.), B.C. (Ox.), Ph.D. (Cal.), assistant professor.

In the Department of Medical Research (Banting):—Promotions: D. A. Irwin, M.B., B.Sc. (Med.), from an assistant-professorship to an associate-professorship; C. C. Lucas, M.A.Sc. (B.C.), from a research associateship to an assistant-professorship.

In the Ontario College of Education:—Appointments: G. Taylor, B.E. (Syd.), B.A. (Camb.), B.Sc. (Syd.), special lecturer, geography; L. H. Newell, B.A. (West.), Instructor in the University of Toronto Schools.

Honours were conferred upon members of the staff:

Professor C. H. Best was invited to Yale University as a visiting lecturer; Professor P. Edgar was awarded a gold medal from the Royal Society of Canada for his outstanding contribution to Canadian literature; Dr. J. G. FitzGerald was appointed by the Rockefeller to serve another term as Scientific Director of the International Health Division, and has been asked to make a survey of the teaching of preventive medicine and hygiene in Canada, the United States and Europe; Mr. E. R. Hopkins was appointed one of the secretaries for the Rhodes Trust for the selection of Rhodes Scholars in Canada; Professor W. P. M. Kennedy was appointed a member of the Committee on Comparative Law by the Government of France, under the French Ministry of Justice; Dr. K. G. McKenzie was elected President of the Harvey Cushing Society of America; Sir Ernest MacMillan had the honorary degree of Doctor of Laws conferred upon him by the University of British Columbia; Professor T. J. Meek was elected a Trustee of the American Schools of Oriental Research; Professor E. S. Moore was elected Vice-President of the Society of Economic Geologists of America; Mr. A. F. W. Plumptre was invited to give a series of lectures at Cambridge University, England, on "Recent Monetary Developments in the British Dominions"; Miss E. K. Russell was asked to make a study of the facilities for advanced nursing education in England in connection with the Florence Nightingale International Foundation; Dr. E. S. Ryerson was elected President of the Association of American Medical Colleges; Professor J. Satterly was elected President of the Devonshire Association for the Advancement of Science, Literature and Art; Professor V. G. Smith was elected chairman of the Toronto Section of the American Institute of Electrical Engineers; Mr. W. S. Wallace was awarded a gold medal by the Royal Society of Canada for his outstanding contribution to Canadian history; Dr. G. E. Wilson was elected second Vice-President of the American College of Surgeons; Dr. Healey Willan was appointed Chairman of the Board of Examiners for degrees in music at Bishop's College, Lennoxville, Q.

THE UNIVERSITY IN GENERAL

The visit in November 1935 of Their Excellencies, the Governor-General of Canada and the Lady Tweedsmuir, was a most happy event in our history. They generously gave us a whole day of their time in Toronto, and at night were gracious enough to receive with the President and Mrs. Cody the members of the staff and their wives, who attended this annual function in the Museum—a magnificent background for such a social gathering. About fifteen hundred were present. This reception affords an opportunity for our whole academic family—belonging to all colleges, faculties and departments—to meet one another and to realise that they are members incorporate in one great university body.

Their Excellencies sent to the University signed photographs of themselves

as a souvenir of their visit. These now hang in the upper corridor of Simcoe Hall beside the photographs of Earl Grey and his wife.

On the afternoon of Tuesday, the 28th of January, the day of the funeral of our late Sovereign, King George V, a memorial service was held in Convocation Hall. The order of service was that used in St. George's Chapel, Windsor. Principal Eakin of Knox College read the opening sentences, Provost Cosgrave of Trinity the 23rd Psalm, Chancellor E. W. Wallace of Victoria the lesson, Principal McElheran of Wycliffe read the appointed prayers, and I gave the address. The Lieutenant-Governor and Mrs. Bruce, the Chancellor of the University, the Minister of Education, members of the Board of Governors and of the Senate and a great throng of members of the staff and of students filled the Hall. King George received the honorary degree of this University on the occasion of his visit to Canada as Duke of Cornwall and York.

The School of Library Science has developed steadily under Miss Barnstead's direction. Most public libraries in the Province now seek a librarian who has been trained in an efficient Library School. Some universities give a degree in library science to those who have taken this course. In consequence graduates of a School which gives no degree are at a disadvantage in seeking positions in comparison with those who have received a degree. The Senate of the University therefore determined to extend the course in content and standard, and to grant the degree of Bachelor of Library Science to candidates who have successfully met the tests imposed. Nowhere in Canada are greater facilities available than in Toronto for a thorough training in librarianship.

The Ontario Educational Association celebrated this year the seventy-fifth anniversary of its foundation. The University determined to mark this event by holding a special convocation at the annual meeting of the Association in Easter Week for the purpose of conferring honorary degrees on the Minister of Education, two outstanding teachers in the secondary schools, and one veteran and progressive Public School Inspector. In this fashion honour was paid to the services of our teachers, who train the most precious assets of the Province, its growing boys and girls. "Ian Hay"—himself an old teacher—describes the profession to which he was proud to belong as "the most responsible, the least advertised, the worst paid, and the most richly rewarded profession in the world".

The usual Armistice Day commemoration was held on the eleventh of November, under the auspices of the Alumni Federation, at the Sodiers' Memorial Tower. It was marked by one of the largest gatherings of students in our university history. It is of no small significance that in the very centre of throbbing undergraduate life there stands a Tower of Remembrance which constantly proclaims the sacrifice by which our freedom and other priceless national possessions were maintained.

Each year we welcome to the University the convention of the editors of the High School journals of the Province. By their conference and by their contact with the University they become more conscious of the high calling of journalism and of its possibilities and responsibilities. Many of these students come afterwards as undergraduates to this University.

During the year the Board of Governors purchased from the Government the old building of McMaster University, now used to accommodate the departments of economics, geography and social science, and to provide additional laboratory space for organic chemistry and psychology. The Governors also purchased the Alfred Beardmore house on St. George Street, immediately south of the University College Women's Union. The house has been wrecked (as rehabilitation was too expensive) and the ground is kept for future expansion.

THE FACULTY OF ARTS

Under the head of "Social and Philosophical Studies" there has been prescribed a common first year course for modern history, philosophy, political

science and economics, psychology and sociology. This forms a general basis for later specialisation.

The long standing honour course of English and history now yields to separate honour courses in English and in history. Each one of these courses, however, contains much of the other. It is impossible to lay too much stress on the value of a precise and idiomatic use of our mother tongue. It is the first mark of an educated man, no matter what course he has taken in the University. The sciences and the humanities find here an interest and a requirement in common.

Last year a pass course in fine art was established. This year begins an honour course as well in this most interesting subject. Such a course has a general cultural value, and also prepares a student for teaching art in the secondary schools. The number of students enrolled in this course has been so large as to demand an assistant to Professor Alford. As I have already noted the Carnegie Corporation has made it possible for us to secure the highly skilled services and scholarship of Dr. Peter Brieger. Thanks to the generous gift of Mr. J. W. L. Forster we have been able to enlarge the Fine Art Library and to procure a large number of the Medici reproductions in colour of famous masterpieces. The Carnegie Library of Art photographs has been catalogued and arranged in cases. A librarian is now in charge of these for eight months in the year. Commodious quarters have been provided in the third floor of University College for these art treasures and for the offices of Professor Alford and Dr. Brieger. As I stated in last year's report, this department will keep teaching distinct from propaganda in the field of art. It will not be the prophet of any special school or group, but will seek to present to the students the products of successive ages for their understanding and appreciation. No education is complete without seeking to instil a knowledge and love of beauty. The broad aim of art would seem to be to represent the reality of things under the form of beauty.

The new professor of geography, Dr. Griffith Taylor, gave his inaugural lecture on "Illustrations of the new Geography". This was attended by the Lieutenant-Governor, Dr. Bruce, Dr. Camsell, the president of the Canadian Geographical Society, Dr. Joerg of the American Geographical Society, and Professor Preston James of the University of Michigan. Thus was auspiciously launched this University's new venture in geography—the story of the background of man's history; the description, localisation and explanation of the facts which relate man to his material environment. In his first year of work here Professor Taylor has aroused general interest in his subject and has specifically given courses in economic geography. Already it looks as though his regular course which will begin in the academic year 1936-37 will be crowded, and will demand further accommodation and assistance in teaching.

The new buildings of St. Michael's College will be opened in the autumn, and will house the Institute of Mediaeval Studies. This Institute under its able staff, which includes Professor Edouard Gilson and Professor Jacques Maritain of Paris, as well as Father Phelan and his colleagues, has already become famous on the continent as a seat of philosophical studies. We are grateful to Professor Gilson for his kindness in giving to the whole University a course of four lectures on DesCartes and his philosophy. It is our hope that in the next year or two we may add a mediaeval historian to the general history staff of the University.

The Law Club, embracing all the students in the department of law, gave a complimentary dinner to their head, Professor W. P. M. Kennedy, on the 17th of March—a delicate reference to Dr. Kennedy's nationality. In acknowledging this remarkable tribute of respect, Professor Kennedy referred to the development of legal studies in this University and to the present day scientific approach to the study of legal principles. Professor Kennedy and his colleagues are editing the *University of Toronto Law Journal* and are thereby making a great contribution to the furtherance of legal scholarship in Canada. Professor

Auld is one of the editors of the "Laws of Canada", the Canadian parallel (on a smaller scale of course) to Halsbury's monumental volumes "The Laws of England". Professor Norman Mackenzie has been giving much attention in public addresses to problems in connection with the League of Nations and with international relations in general.

On the 9th of December, 1935, the University commemorated the 2000th anniversary of the birth of the famous Roman poet Horace. The President took the chair at a well-attended public meeting and Professor DeWitt of Victoria read a paper on "The Life and Thought of Horace", while Professor L. A. Mackay of University College read a paper on "The Art and Influence of Horace".

Professor Homer Thompson returns from Greece for half of the academic year to give his lectures in classical archaeology. The other half of the year he spends in actual excavation work under the American School in Athens. He has been a leader in excavating the Agora or ancient marketplace of Athens. Some of his brilliant topographical conjectures have been verified by the actual digging. On his own account he has continued his special work of excavating the Acropolis in and about the Pnyx—where the Athenian orators stood to harangue their fellow-citizens. The remarkable results of this excavation he has published as "Pnyx and Thesmoptorion" (reprinted from the famous magazine of Classical Archaeology, *Hesperia*). This immediate contact between the field of excavation and the lecture-room adds life and interest to Professor Thompson's teaching.

A new combined course in biology and physics has been established which, it is expected, will deal presently with the problems of modern refrigeration.

Graduate courses in Chinese archaeology and history have been approved by the Senate. Bishop White, the associate professor in this department, is looking forward to a class of students in this field. The unique collection of Chinese art and the Chinese library of 45,000 volumes should make Toronto, under Bishop White's leadership one of the great centres of Chinese studies on this continent. Bishop White attended the remarkable exhibition of Chinese art held last winter in London, and is still enthusiastic over the marvel of our own collection in the Museum.

The late Sir John McLennan left a bequest of $5000 to the department of physics, together with his books and papers. This sum of money may be used for the benefit of the department in any way that may from time to time be determined. In all probability an additional fellow will be financed from it for the coming year.

FACULTY OF MEDICINE

In the Banting Institute readjustment of rooms has been made to provide reasonable accommodation for Dr. Hall's research work. Already this building, so recently erected, is becoming crowded and some addition, perhaps by way of an additional story, is urgently required.

The Branch of the Connaught Laboratories established in Vancouver in connection with the University of British Columbia and the Provincial Department of Health has rapidly expanded under Dr. Dolman's direction, and further extension must be considered.

On the home farm of the Connaught Laboratories extensive reconstructions, adjustments and additions have been made to the buildings at a cost of about $100,000, paid out of the earnings of the Laboratories. Fifteen more acres of land have also been purchased.

Mr. E. C. Fox has succeeded Mr. Mark H. Irish as Chairman of the Board of the Toronto General Hospital.

Intensive courses for graduates and men in medical practice have been held in the departments of surgery and paediatrics. In each class about thirty were enrolled. The holding of such refresher courses will likely become a regular event each year.

The spirit of research permeates this Faculty to a remarkable degree. It has been possible to carry on medical researches even through days of financial depression, because of the various special funds from which grants could be made —such as the Banting and Best Funds, the Banting Research Foundation, the Insulin Royalties and the Connaught Laboratories Fund. I do not think that this fact is sufficiently realised. The field for further medical research is wide and can be more fully occupied if funds are forthcoming.

FACULTY OF APPLIED SCIENCE

On January 29th in the theatre of the Royal Ontario Museum the University celebrated the two hundredth anniversary of the birth of James Watt, the pioneer in the use of the steam engine. Dean Mitchell gave an introductory address and two illustrated lectures were given—one by Professor Angus of the department of mechanical engineering on "The Inventions of James Watt" and the other by Professor E. A. Allcut on "The Influence of James Watt in Modern Industry". Such commemorations remind modern folk of their debt to the past and throw into relief the great figures in the development of present-day civilisation.

The Engineering Society celebrated the fiftieth anniversary of its birth by a conference and reunion. Many eminent engineers returned to their old training school and discussed pressing engineering problems.

Much consideration is being given to the development of a course in aerodynamics and aeronautics for students who are properly prepared for it. Increasing interest in air-travel over the ocean and over the continent has quickened the pace of engineering research on which depends the future of such transportation. The wind tunnel has been placed in charge of a committee consisting of the President of the University, the Dean of the Faculty, and Professors Angus Young, Loudon and Burton, so that as wide use as possible may be made of it under proper supervision.

There has been some demand for a course in Sanitary Engineering and this has been met by a temporary arrangement. But it may well be that permanent provision should be made. The problem of the disposal of waste is so intimately associated with the promotion and preservation of public health that it has become one of the most important which confronts modern civilisation and must be faced by every civil engineer. Our engineering faculty must be a leader in meeting every new demand of social need.

The Wallberg bequest has furnished this Faculty with another grant for its student loan fund. Soon this fund will be measurably selfsustaining. From the same source have come the funds asked for certain specific researches, and for certain additional equipment in the department of chemical engineering, such as a high-pressure filter press, an autoclave, a heat exchanger, an absorption tower, and a reconditioned fractionating still. This last equipment has made it possible for the teaching staff to illustrate by actual process the theoretical teaching of the text-books and the lectures.

The School of Architecture continues its annual exhibition of watercolour sketches made by its senior students during their stay at the Survey Camp on the shore of Gull Lake. Some of the sketches reveal remarkable artistic power, and all show the beauty of this open-air practice in drawing and colouring. The Royal Architectural Institute of Canada conducts a yearly student competition. In the Class "A" Exhibition Building the first medal was won by Mr. W. A. Salter of our Toronto School and the second by Mr. J. F. C. Smith also of our School of Architecture. Five other students of this School received "first mention" and "mention".

The problem of more space, especially for chemical engineering still confronts us.

THE GRADUATE SCHOOL

For the last few years the number of students has remained practically the same, nearly 600. This department of our work is of the highest importance. A university gains rank among the great universities of the world by the excellence of its postgraduate work. Our departments vary in their attraction to graduate students.

The years of depression have undoubtedly increased the number of enrolments. Scarcity of employment has had an influence in prolonging the period of preparation for the enlarging opportunities of better times. It is, however, problematical whether or not the coming of improved economic conditions will decrease the number of graduate students. There really seems to be a strong tendency to prolong preparation, and this tendency may not be easily reversed.

Each graduate student is an individual problem and must be dealt with by himself. Real scholars—and such scholars a graduate school seeks to train—cannot be produced by mass instruction. Those enrolled in this School come from all parts of the Dominion and beyond its bounds. The special growth of this University must be along the line of developing postgraduate instruction, and of providing postgraduate laboratories and libraries. This will be probably one of our distinctive contributions to higher education in Canada.

In this School, we sorely need open fellowships of the value of $500 or more.

UNIVERSITY EXTENSION

No department of the University has made greater or more permanent advances than this Department of Extension under the progressive and far-seeing direction of Mr. Dunlop. A new feature in this year's work was the provision of a course in Public Administration. It was attended by 90 men and women from different parts of the Province. The Hon. Mr. Croll, the Minister of Public Welfare, addressed the opening session and experts in finance, economics and administration took charge of the courses of lectures. Larger plans will be carried out in the coming session. We are glad to note that other universities have been by this effort stirred to provide similar courses. Municipal administration touches every citizen so closely that any improvement effected in it brings benefit to the whole community.

In the different groups of the Teachers Courses 1805 teachers have been served. No students are keener than are teachers. The broadening and enriching of mind and personality, gained in the studies leading to a degree through these courses, must react beneficially on the whole body of pupils in our elementary schools.

7,142 adults have been engaged in continuous courses of study under this department, and probably more than 50,000 in addition have taken advantage of extension and public lectures.

With the work of this department is closely linked the growth of the general Adult Education movement. For the past two years there has been in existence a Canadian Adult Education Association, of which Mr. Dunlop is president, and Mr. Corbett (formerly of the University of Alberta) is organising secretary. Universities, Provincial Departments of Education, Women's Institutes, the Y.M.C.A., the Y.W.C.A., and other voluntary agencies can combine to systematise and advance this much-needed endeavour. People are discovering that they can acquire knowledge as readily in adult life as in youth.

The demand for more systematic adult education has increased and become urgent as a result of at least three factors: (*a*) unemployment and the tendency towards shorter working hours; (*b*) the realisation by people generally that they need a better understanding of national and international affairs and of their influence on local conditions; (*c*) the increase of libraries, radios, programmes of study and summer schools and such like facilities offered by university extension departments. To meet this demand all the agencies concerned, libraries,

universities, education departments, and voluntary organisations are seeking to provide education for adults, with a view to caring for those who have missed educational opportunities in earlier life; for those who are trying to keep up with the changing and growing content of knowledge; for those who would gain appreciation and enjoyment in art, music, literature, and nature; for those who would fill leisure with interest and increased power of service. I believe that the great next forward step in the world of knowledge will be taken in the field of adult education. Never was there greater need for knowledge and clear thinking. The acuteness of the need will evoke the answer. I believe that this University will continue to take a leading part in developing and supporting all sound schemes of adult education.

Under the supervision of this Department of University Extension, a general plan of co-operation between the Physical Education department of the University and the Margaret Eaton School has been carried out on the lines laid down by the Senate of the University. The University provided for the Margaret Eaton School anatomy courses for junior and senior students, English for the junior class and psychology for the senior class. The Margaret Eaton School provided for the University facilities for remedial gymnastics and massage for the first and second year classes in physiotherapy; the gymnasium three hours a week for the use of the Women's Athletic Association; a course in the theory and practice of gymnastics for first year students of physiotherapy and occupational therapy; and a course in remedial gymnastics for the second year class in occupational therapy.

THE LIBRARY

A university library is no longer regarded as a mere incidental appendage to the lecture-room. It is an essential factor in the educative process for both undergraduates and graduates. The vast strides made in recent years in certain branches of knowledge and the enormous output of the printing press have emphasised the function of the library in the work of the university. If a university "does not look to its books, it both fails to meet its responsibilities and takes the sure road to decline".

The number of books handled in our library increased by 13,000 or 4% over the previous year. The total circulation was 370,004, of these 330,579 were used by undergraduates. Dominion taxes have diminished our purchasing power by $1500.

We are now confronted with an increasing circulation and a growing congestion in our stack rooms, our work rooms and our reading rooms. If any friend of the university would give a new or an enlarged library building and a corresponding endowment for books and periodicals, he would confer on the whole cause of higher education in Canada a benefit of lasting and incalculable value. Donations of any sums, large or small, for the purchase of books and scientific journals, would help us in our present necessities. It is in the field of graduate studies that this need is most keenly felt.

HEALTH SERVICE

Increasing attention is being paid in all universities to the physical health of the students, both men and women. As the ancient Greeks sought it in their "gymnastic", so are we moderns seeking to make the body a fit and trained instrument of a fit and trained mind and character.

Dr. Porter's statement about the health of the men students is reassuring. The number examined was 1742 (apart from those at the Ontario College of Education, who are examined by a special board). Of these 94 per cent. are fit for physical exercises, four per cent. require corrective exercises, and only two per cent. are physically unable to take exercise. Dr. Edith Gordon's report on the women is as satisfactory as it can be without a gymnasium. Every pre-

caution is taken to detect incipient weakness and to apply the proper remedies. As a result of the exercises taken and prescribed, there is noted a general improvement in the physical condition of students in their second year.

I am glad to state, after consultation with Mr. Warren Stevens, the general athletic director, that the number of students who actually take part in sports and games is about 2,000. It is better to play some game than to watch others play.

There has been a fear expressed in some of the universities of the old world that their students would not submit to a compulsory medical examination or to supervision of games; they would refuse to be "regimented". But we have not found this to be the case. This obedience to a wholesome regulation is found to result in real freedom, freedom from disease, low spirits, inertia.

Dr. Gossage is now in attendance at the surgery in the athletic side of Hart House between the hours of 5 and 6:30 to deal promptly with any accidents that may occur either on the playing field or in the gymnasium.

THE SCHOOL OF NURSING

This year marks the completion of four years of the experiment inaugurated for the better training of Public Health Nurses. The first graduating class of eight received their diplomas as Public Health Nurses after a period of three years' training, during which they have been fitted to be both hospital and bedside nurses as well as fully competent public health nurses. It is into this latter field they now proceed. The School has trained registered nurses for public health nursing by an intensive additional one-year course, and for posts of teaching and administration in hospitals.

In response to pressing demands, refresher courses have been held alternately for hospital and for public health nurses. For one month about 160 nurses (at the rate of 24 a month) from the various hospitals in Toronto and outside it come for teaching in the preventive and public-health aspect of their training.

This School is evidently meeting a real need in the community and is setting a high standard.

STUDENT ACTIVITIES

Details of these will be found in the reports of the Warden of Hart House and the Secretary of the Athletic Directorate. In addition, there are numerous student organisations in connection with special courses and departments, such as the Commerce Club, and the Historical Club, and for purposes of general discussion and study, such as the Debates Union of Hart House.

The Dining Hall in Hart House is still meeting with competition from outside restaurants. Its equipment has been greatly improved by the provision of comfortable chairs (through the generosity of the Massey Foundation). Most of the university student organisations hold their annual festival gatherings in Hart House; I sincerely hope they will continue to do so. Hart House through its many-sided life contributes to the unification in sentiment of the constituent parts of the University. University authorities in all parts of the world know of its constitution and its accomplishment and pay it the tribute of admiration and imitation. Dr. Priestly, the Vice-Chancellor of Melbourne University (a brother-in-law of our own Professor Griffith Taylor) visited Hart House in the spring and gave careful and appreciative study to its place in our common university life.

One of the most interesting events of the year in Hart House is the dinner at the beginning of the term for all the members of the various committees who have charge of the manifold activities of the House. Usually about 130 are present.

It must always be remembered that students through experience of these

voluntary organisations take no small part in their own education, and often win the inestimable boon of life-long friendships.

The Student Administrative Council, the chief undergraduate representative body, becomes increasingly useful. I wish to thank the Council and its secretaries for their understanding co-operation throughout the year. I congratulate them on their excellent financial management, whereby they are able to give substantial assistance to many student organisations, such as the Band and the Orchestra, and to carry on their most successful Loan Fund. Another development of the Council is the Employment Bureau, which has rendered great help to students in search of work.

The teams which have represented the University in different sports have "played the game", even when they have not won the championships. The Senior Rugby Team played splendidly throughout the series of intercollegiate games, although it was beaten by a narrow margin in the "play-off".

The C.O.T.C. has been up to full strength. Colonel Cockburn has been succeeded in the command by Colonel H. H. Madill. Our present Sovereign some time ago remarked with truth that "all discipline is not a training for war". I believe that things far deeper and more subtle than a university Officers Training Corps are needed to make a nation war-minded.

THE ALUMNI FEDERATION

Under the new secretary, Mr. Byron Wood, and its president, Dr. Deadman of Hamilton, the Federation is seeking to "lengthen its cords and strengthen its stakes", to extend and to consolidate its work. *The Monthly* has come out in a new *format*, and plans are being prepared for the Home-Coming in October. The loyalty and helpfulness of our graduates are very real, but they must be organised and combined. The University depends upon the goodwill of the people. That goodwill can best be created by the services which the University renders to the Province, and the highest form of that service is embodied in the "graduate" as a good citizen. The University is rightly judged by its human product. It is from our universities that must come men and women some of whom will be wise leaders and some intelligent followers. The country needs both.

The secretary hopes to visit and organise alumni associations in various Canadian centres, so that there may be developed a sense of unified academic allegiance. Local associations could render great help to able students in these days by providing yearly scholarships in this University for young men and women from their immediate neighbourhood.

THE UNIVERSITY LANDS

A recent visit to the Survey Camp on Gull Lake has not only made me realise the value of this fine practice ground for the civil engineering class, the students in architecture, and the group in geology, but has reminded me of the amount of land the University possesses around its various buildings.

At Gull Lake are 172 acres; around the Observatory are 177 acres; at the Connaught Laboratories are 75 acres; and here in the heart of a great city 71 acres (apart from additional holdings of the Federated Colleges); in all the University owns 495 acres.

UNIVERSITY BUILDINGS

The Superintendent of Buildings, Colonel LePan, has a task the magnitude of which is not often realised. On his office staff 14 persons are required. The buildings under the control of the University (not including the buildings of the Federated Colleges) number 57. The number of employees (carpenters, electricians, painters, plumbers, tinsmiths, labourers, cleaners, caretakers, and others) is 276. Employees salaries and wages amount to $310,241. Customs entries

reach a total of 1169. The financial turnover at the Post Office is $32,747. The accounts for lighting amount to $85,371, and for coal to $101,435. The repairs and renewals cost $71,655, which is less than one-half of one per cent of the replacement value. It is worthy of note that the buildings are well kept up, even though there is a minimum of expenditure on them.

There is much beauty in many of our university buildings and in the open spaces about them. Indeed the university group forms one of the chief architectural attractions of this city.

The Board of Governors through its Chairman and a committee is giving careful consideration to the plans, cost and maintenance of a gymnasium for the women students of the University. The problem of financial maintenance and of the necessary fee to be charged is not easy to solve; yet I trust that as soon as possible we may begin the erection of such a building. The health of the women students would be benefitted thereby.

VISITING LECTURERS

During the year the following special lectures were delivered:

On the Alexander Foundation a course of three lectures by Dean F. B. Snyder of Northwestern University on "Robert Burns: his personality, his reputation, his art"; a lecture by Professor F. Baldensperger, formerly professor of comparative literature at the Sorbonne, on "Les assises de la comedie humaine de Balzac"; a lecture-recital by Rev. Edmund H. Fellowes, director of the choir of St. George's Chapel, Windsor, England, on "Tudor-music", in association with the Tudor Singers of Toronto; a lecture by Mr. Richard Finnie, explorer, Ottawa, on "Wandering through French Canada"; a lecture by Professor R. H. Fowler, Fellow of Trinity College, Cambridge, England, on "Co-operative phenomena in matter"; a lecture by Miss Marjorie Gullan, chairman and director of studies of the Speech Fellowship and Institute, London, England, on "Choral speaking as a contribution to education"; the Donald C. Balfour lecture by Dr. Melvin S. Henderson, professor of orthopaedic surgery, Mayo Foundation Graduate School, Rochester, Minn. on "Orthopaedic Surgery: an historical review"; a lecture by Mr. C. W. Jenks of the Legal Section, International Labour Office, League of Nations, on "Federal States as members of the International Labour Organisation"; a lecture by Professor K. Kuratowski, on "The generalised theory of functions of a real variable"; a lecture by Professor H. Ries, head of the department of geology, Cornell University, on "Some recent advances in the geology and utilisation of the non-metallics"; ten lectures by Dr. Ludwig Silberstein, consulting mathematician, Eastman Kodak Company, Rochester, N.Y., on "Discrete Spacetime"; the inaugural lecture by Professor Griffith Taylor of the department of geography, on "Illustrations of the new geography"; a lecture by Professor H. C. Urey, department of physics, Columbia University, on "Methods for the separation of Isotopes"; a lecture by Sir Alfred Zimmern, professor of international relations, Oxford University, on "The International Outlook".

In connection with the department of physics a series of twelve lectures by Dr. W. H. Kohl, research laboratory, Rogers Radio Tubes Company, Toronto, on "Electron optics, Thermionic Emission, Luminescent Screens"; eight lectures by Dr. B. Haurwitz, Carnegie Fellow in Meteorology, on "The Physics of the higher Atmosphere".

University College Department of English arranged an interchange of lectures between Professor H. J. Davis and Professor Devane of the English staff of Cornell University.

The following lectures were given in Convocation Hall under the auspices of the Royal Canadian Institute:

By Professor J. Ellis Thomson on "The Minerals that surround us"; Mr. James I. Hambleton, Department of Agriculture, Washington, D.C. on "The

Realm of the Honey-Bee"; Professor Harlow C. Shapley, Harvard College Observatory, "Surveying the Outer Universe"; Dr. Arthur L. Day, Geophysical Laboratory, Carnegie Institution, Washington, D.C. "Hot Springs of Yellowstone Park"; Dr. H. T. Gussow, Dominion Botanist, Ottawa, "Botanic Gardens for Canada"; Dr. Raymond C. Dearle, Department of Physics, University of Western Ontario, "Physical Science in the Practice of Medicine"; Dr. David J. Price, Bureau of Chemistry and Soils, U.S. Department of Agriculture, "The Dynamite of Dust"; Dr. Burton T. Simpson, State Institute for the Study of Malignant Disease, Buffalo, N.Y., "The Cancer Problem"; Mr. Frank Pullen, Naturalist, Oakville, Ont., "With a Movie Camera in East Africa"; Professor W. L. Holman, "A medical study of famous people"; Professor C. T. Currelly, "Two Ancient Countries, Ontario and Egypt"; Professor L. C. Coleman, "The Story of Sugar Cane"; Mr. George O. Sanford, Engineering Division, Bureau of Reclamation, Department of Interior, Washington, D.C., "Boulder Dam"; Professor Griffith Taylor, "A Scientist in the Antarctic"; Dr. Frank Oastler, Naturalist and Explorer, New York, "Alaska and the Stikine"; Dr. C. M. Hincks, National Committee for Mental Hygiene, "Man's Last Spectre"; Professor A. O. Gross, Bowdoin College, "North of Battle Harbour"; Professor A. P. Coleman, "Volcanoes of Mexico"; Dr. C. E. K. Mees, Eastman Kodak Company, Rochester, N.Y., "Some recent progress in astronomical Photography".

The following delivered lectures under different departments of the University:

Dr. T. Z. Koo, on "The Contribution of Christianity to China"; Sir Francis Floud, British High Commissioner in Canada, on "Canadian Agricultural Products in the British Market"; Dr. S. Pettersson of the Meteorological Service, Bergen, Norway, on "Fundamental Principles of Air Mass Analysis"; Dr. L. R. Broster, of Charing Cross Hospital and University of London, on "Change of Sex"; Dr. T. Kagawa of Japan, on "Religious Conditions in Japan".

VISITORS

Among the visitors during the year were:

Dr. F. H. Spencer, former chief inspector under the London County Council as a representative explaining British policies and systems in education; Dr. R. E. Priestly, Vice-Chancellor of the University of Melbourne, Australia. On the occasion of the 25th anniversary of the Overseas Education League the following: Mr. G. T. Hankin, staff-inspector, Board of Education, London; Mr. D. D. Anderson, inspector of schools, London; Mr. W. D. Cousins, director of education, Londonderry and Limavady; Mr. T. J. Rees, director of education for Swansea, Wales; Mr. W. A. F. Hepburn, Director of education for Ayrshire, Scotland; Dr. J. E. Smart, director of education for Acton, London; Mr. W. A. Brockington, director of education for Leicestershire; Mr. F. H. Toyne, education officer for Brighton, England; Mr. E. M. Rich, education officer for London; Mr. E. Salter Davies, director of education for Kent; Mr. T. B. Tilley, director of education for Durham; Mr. J. A. Peart, director of education for Winchester.

LEARNED SOCIETIES

The following learned societies met at the University:

The American Ornithologists Union; The Association of American Medical Colleges.

SPECIAL CONVOCATIONS

Special Convocations were held:

November 27th, when the degree of Doctor of Laws, *honoris causa*, was conferred upon His Excellency Lord Tweedsmuir, Governor-General of Canada; April 14th, in connection with the 75th anniversary of the founding of the Ontario Educational Association, when the honorary degree of Doctor of Laws was conferred upon: The Honourable L. J. Simpson, Minister of Education for

Ontario, Mr. H. R. H. Kenner, Principal of Peterborough Collegiate and Vocational School, Mr. J. H. Putman, Chief Inspector of Public Schools, Ottawa, Miss M. E. Spence, formerly of Parkdale Collegiate Institute, Toronto; on June 3rd when the honorary degree of Doctor of Laws was conferred upon The Honourable Horace Harvey, Chief Justice of Alberta, Dr. G. F. Kay, Dean of the College of Liberal Arts, University of Iowa, and *in absentia* upon Professor W. A. Parks, Department of Geology; the honorary degree of Doctor of Science upon Professor R. S. Lillie, University of Chicago, Professor T. R. Rosebrugh, Department of Electrical Engineering, and *in absentia* upon Dr. W. H. Collins, Director of the Geological Survey of Canada; the honorary degree of Doctor of Music upon Mr. W. H. Hewlett, Principal of the Hamilton Conservatory of Music.

PORTRAITS

The portrait of Dr. Althouse, now Dean of the Ontario College of Education, was presented to the University of Toronto Schools, of which for years he was the headmaster, and hangs beside the portrait of his predecessor, H. J. Crawford, and his great teaching colleague, Dr. T. M. Porter.

A portrait of Dr. C. F. Heebner, the Dean of the Ontario College of Pharmacy, was presented to him by the Ontario Druggists Association, and by him was presented to the College.

Sir John McLennan's portrait by Augustus John R.A. hangs in the library of the McLennan Laboratory. It was the gift of a group of his friends.

BENEFACTIONS

During the year the University has received the following benefactions, totalling $100,968.68:

From the Rockefeller Foundation: Child Research and Parent Education, $19,968.23, School of Nursing, $17,500; Eaton Endowment, $25,000; Carnegie Corporation: Fine Art, $7,511.50, Workers' Educational Association, $2,543.75, Fellowship in Physics, $2,410.50; Estate of the late Sir John McLennan, $5,000, also books, papers and instruments; Canadian National Committee for Mental Hygiene, for psychiatry, $4,354.36; Reuben Wells Leonard Fellowship and Scholarships, $3,500; Flavelle-Peacock Lectureship: Sir Joseph Flavelle, $1,250, Sir Edward Peacock, $1,250; Graduate Fellowships: Sir Joseph Flavelle, $500, Imperial Oil Limited, $500, Estate of the late Sir Edward Kemp, $500; Standard Brands Research Fund, for chemistry, $1,002.65; D. A. Dunlap Memorial Scholarships, $1,000; J. W. L. Forster Library Fund, for fine art, $1,000; Robert Simpson Company Scholarships, $550; St. Margaret's College Old Girls' Association, for Florence M. Neelands Prize, $520; Alma Anderson Bastedo Memorial Prize, $512.50; Sir Edmund Walker Scholarship, $450; Robert Bruce Scholarship, $421.39; Gertrud Davis Exchange Fellowship, $400; University College Alumni Matriculation Scholarship, $400; S. R. Parsons Scholarship, Commerce and Finance, $250; J. B. Willmott Scholarships in Dentistry, $250; Canadian Dental Association Research Fund, $200; Anonymous, for Mary Keenan Award, $200; Social Science Scholarships: Anonymous, $100, St. Margaret's College Alumnae Scholarships, $75; Boiler Inspection and Insurance Company Scholarship, mechanical engineering, $150; George Kennedy Scholarship, $130.56; Sarah Kennedy Scholarship, $130.56; Sir John Eaton Memorial Scholarship, University Schools, $120; Maurice Hutton Matriculation Scholarship, $100; Darling and Pearson Prizes in Architecture, $100; Pan-Hellenic Association Prizes, $100; Toronto Brick Company Prizes, architecture, $100; University College Alumnae Scholarship, $100; University Tours Association Scholarship, $100; Canadian Engineer Prize, $100; Ramsay Wright Scholarship, $81.42; McCaul Scholarship in Classics: Professor M. Hutton, $37.50, Professor G. O. Smith for group, $17.00; Lamba Chi Alpha Alumni of Toronto for Ronald S. Saddington Medal, pathology, $53.50; Hollywood Theatre Prizes in French, $50.00; Dr. R. A. Reeve

Prize in Medicine, $50; F. W. Jarvis Bursaries, $50; Toronto Women's League of the United Synagogue Scholarship, Medicine, $50; Hon. Mr. Justice Riddell and Mrs. Riddell for Riddell Scholarship in Law, $30; Pakenham Memorial Prize, $25; Engineering Institute of Canada Prize, $25; University College French Society Prize, $25; Ontario Medical Association Prize, $25; American Society of Heating and Ventilating Engineers, $25; Canadian Medical Institute Prize, $25; Alumnae Prize in English, $10; Tracy Scholarship in Philosophy, $10; Maurice Cody Memorial Scholarship, University Schools, $10; Professor G. O. Smith for Fletcher-Johnston Prize, $10; Sundry items, $28.26.

In addition to the above a water-colour painting of the University of Toronto in 1876 by Lucius O'Brien was presented by two Governors of the University of Toronto.

We acknowledge these many contributions with sincere appreciation and a lively sense of gratitude. I believe that the donors will experience an equal sense of satisfaction, as they observe how their gifts are fulfilling the purpose they had in mind and are in so many cases making it possible for able, though needy, students to complete their courses and to become fit for a useful life-service.

SCHOLARSHIPS

Several new scholarships and prizes have been contributed during the past year: The Mary Keenan award of $200 in political science; the Pakenham Memorial Prize in the Ontario College of Education; the Royal Architectural Institute of Canada Gold Medal, at graduation in architecture; the Caroline Macdonald Memorial award, to be given to a Japanese student who is studying Social Science in this University; the Toronto Women's League of the United Synagogue prize in second year medicine; the H. R. Bain Scholarship of $200, at matriculation into the Faculty of Applied Science.

The Board of Governors has defined the conditions under which remission of tuition fees will accompany the winning of scholarships: Matriculation scholarships in Arts (1) carry remission of fees equivalent to the cash value of the scholarship; (2) this remission is continued through the course only if the student holds his first-class standing in the examinations. All scholarships in the subsequent years of the course carry no remission of tuition fees. These decisions of the Board were agreed to by the Federated Colleges.

For the purpose of encouraging graduate research work the existing graduate scholarships and fellowships carry complete exemption from tuition fees for the year in which the scholarship is held.

The details of the award of the Reuben Wells Leonard scholarships in University College have also been settled between the Toronto General Trusts Corporation and the Governors of the University. At matriculation there will be four scholarships of $300 each, available for students outside Toronto, and four of $250 each, available for students from the whole Province, which also carry free tuition in the later years on condition that the scholarship holder maintains his first-class honour standing. There are also four scholarships of $250 each to be awarded at the end of the first year at the discretion of the Council of University College to students in honour courses.

The Board of Governors set aside out of the general revenue a substantial sum to be used as a Bursary Fund in University College and in some of the Faculties. By reason of this fund, the Alumni Federation Fund, the Students' Administrative Council Loan Fund, the Wallberg Memorial Loan Fund for the Faculty of Applied Science, and the Loan Funds of the Engineering Society and the Medical Society, it is hoped that no deserving student will be unable to enter or to continue his course for lack of financial resources. The Federated Colleges have similar funds for the aid of students. Special consideration is given to students whose home is outside Toronto, and who must therefore pay

the cost of board and lodging in addition to tuition fees. In this way an effort is made to equalise as far as possible the educational opportunities of city and country.

There is still need of more and larger scholarships. Whether given annually or endowed such scholarships would render a timely service to capable youths, to the University and to the country at large. Our scale of help to brilliant students is small in comparison with that adopted in the Mother Country. The Universities Grants Committee in Great Britain states in its report for this year, 1936, that fifty per cent of the students in the Provincial Universities began their education in the public elementary schools and that 45.2 per cent of the students receive assistance. The percentage of assisted students at Oxford and Cambridge is about fifty. Moreover in many cases the College scholarships are so supplemented by grants from the County Councils that the total cost of the students' university education is defrayed.

Scholarships and other emoluments to the value of at least £1350000 per annum are being regularly given to university students, partly by the State and local authorities; partly by the Universities, Colleges and Schools; and partly by public trusts. These grants are regarded as good investments which bring in good yield in the form of educated humanity. I believe that we ought to increase the scale of our awards.

Many of our students in this University and in Canadian Universities generally, have to earn something by their own efforts either to supplement their scholarships or to provide wholly for their expenses. Their vacations are devoted if possible to profitable employment. This does make the summer reading party an unthinkable enjoyment, and doubtless the bloom of fine scholarship may be unattainable. But I think that what is lost in scholarship is gained in moral strength, self-reliance, and preparation for the struggle of life. Some of our students who win through at the price of self-sacrifice and hard work are veritable heroes; they have gained the moral "wrestling thews which throw the world" of obstacles; they will "make good".

Proposals have from time to time been made that the Federal Government should make grants for scholarships. Such a policy would doubtless justify itself. The best channel through which these students aids could be dispensed would be the various universities of the Dominion.

CONCLUSION

1. One of the significant features of the present situation is that youth seems to have more faith in universities than in most other organised expressions of national life. In spite of the limitations and defects of our universities, youth and adults alike are turning to them not only to learn how to make a living but to find answers to the baffling problems of our generation. Heavy indeed is the responsibility of the university and of university teachers in these days. In a singular fashion they have the ear of youth. They must recognise that they are "vital agencies of civilisation", that they are not agencies of propaganda but agents for the discovery and dissemination of truth. The great lesson they must teach is that fundamentally "the history of civilisation is the history of the development of man's ideas and ideals, and the advance of humanity depends on the achievements of the human mind and spirit". If youth believes that the universities carry a vital message and in consequence yield to them a full measure of trust, the universities in all their members must try to prove worthy of that trust.

2. The importance of the social sciences is increasingly recognised. Human relations are after all the factors that make society. Civil people make civilisation. Sir Alfred Ewing in his presidential address at the British Association of 1932 said: "The cornucopia of the engineer has been shaken over all the earth, scattering everywhere an endowment of previously unpossessed and unimagined

capacities and powers . . . many of these gifts are benefits to man, making life fuller, wider, richer in comforts and interests, and in such happiness as material things may promote." On the other hand, he goes on to say: "Man is ethically unprepared for so great a bounty. . . . The command of nature has been put into his hands before he knows how to command himself". A later president of the British Association, the famous astronomer, Sir James Jeans added this comment: "The tragedy does not lie in man's scientific control over nature but in his absence of moral control over himself".

There is here no belittling of the place and worth of physical science, but there is a demand for something more, something that inheres in man's character and determines his relations with his neighbour and his God.

This year's president of the same great scientific association, Sir Josiah Stamp, concluded his address with these words: "The duality which puts science and men's other activities in contrasted categories, with disharmony to be resolved, is unreal. . . . We have spent much and long upon the science of matter, and the greater our success the greater must be our failure, unless we turn also at long last to an equal advance in the science of man".

These utterances illustrate the trend of thinking to-day. The social sciences —the investigation of human relationships, the solving of the problem how men may live happily and helpfully together—will inevitably demand more attention in our academic courses of study. Such emphasis will not mean neglect of the great field of physical science; rather is the matter an illustration of the words "this ought ye to have done, and not to leave the other undone". Proper human relations are based mainly on intellectual, moral and spiritual factors. It is in ideas and ideals that the real wealth of the world consists. To this wealth, not only the scientist, but the philosopher, the poet, the moralist and the religious teacher make their contribution.

3. What does the university seek to do for a student? Its highest function is (in the words of the University Grants Commission Report) "to train students generally, and (without indoctrinating them in any particular brand of doctrine) in some sort of philosophy of life, which will enable them to do their duty to the community and to fulfil their duty in their station faithfully and soberly". Men must be trained and stimulated "to think strenuously about the great issues of right and wrong, of liberty and government, on which both for the individual and the community a balanced judgment is essential to a rational life".

A graduate, who has gained what his university has tried to give him, has at least an interest in general ideas; he will not accept or reject an idea till he has made an effort to understand it; he has been made "capable of philosophy"; he seeks to go down to the root of things; he has learned to understand the meaning of things in their universal relations; he has some power to discriminate and to appreciate.

All this personal culture he is taught to believe must issue in service.

Are there too many educated men and women among us? Can we really have too many men and women possessed of that combination of knowledge and sound judgment which it is the chief aim of the university to produce?

4. Many of the most cherished and unquestioned values which the past has bequeathed to us are in great areas of the world seriously called in question. Among these are the validity of democracy, the right of the individual to freedom of speech and opinion, the benefactions of modern civilisation, the reality and possibility of progress, the practicability of the highest religious ideals in corporate life, the ability of men to build a decent world, to discern truth, to "save their souls". Are these hopelessly obsolete? Or are they worth preserving? Can we in Canada, for example, maintain a sane and well-ordered democracy? Can we in our land arouse an enthusiasm for it and for our inherited freedom which is in other lands aroused for communism and naziism? More than any other form of government does democracy rest on the intelligence of the citizen. To the university man, who has learned to discipline himself and to think clearly

and strenuously, the call comes in our land to-day to preserve and to purify our inherited democracy, to make and keep it free and ordered and efficient. If democracy fails nationally, it is because it has already failed in man's spirit, mind and conscience. Of the man of privilege and education is demanded a measure of public interest and public service. If there is a flight from reason and responsibility, then is the way prepared for dictatorship. The free university will prove one of the chief bulwarks of the splendid heritage of political, social and religious freedom which, won at great price, our fathers have handed down to us.

5. A living university has many needs. There is a point below which its income cannot sink without seriously impairing its efficiency. I do not think that our University can maintain its high standards, if its budget is further reduced, or rather unless its revenues are reasonably increased. Individuals may render substantial help. There are books to be purchased for special departments in the library; there are chairs that might be endowed, such as those in geography or in geophysics or in art or in music; there are loan funds and scholarships to be established in different faculties; there are postgraduate fellowships to be provided for students from distant parts of Canada; there are research funds to be set up in physical science, in social science, in engineering, in medicine, in dentistry, and in other fields of investigation. Such help if given is an investment yielding an abundant return that continues through future ages.

6. As a university grows in size and numbers its leaders must constantly ask themselves the question whether quality is being maintained, whether additions to numbers tend to weaken the quality of the institution or the value of the training for life which the university seeks to give or tend to lower the fitness and ability of those who enter. "It may seem democratic to diffuse, but it is a poor compliment to democracy to run shallow in its name". Meanwhile we do not seem to have reached a national saturation point for our students. Canada will surely, even though slowly, increase in population, in wealth, and in development of resources. I believe there will be suitable opportunities for those who are fitted to take them.

7. Will the world-order of the future take the form of a soulless and impersonal mechanism in which personal values disappear and freedom is only a dead dogma? Will anarchy and bloodshed be the end? Or will the spiritual regain the mastery and direct that order to a lofty goal? Do we look for defeat or revival? The answer to this crucial question rests I believe with the forces of religion and sound education. It is with a sense of almost overwhelming responsibility and yet with constantly renewed faith and hope that university administrators and teachers face their task to-day.

All of which is respectfully submitted.

H. J. CODY
President

November 26, 1936

APPENDIX A

(1) Report of the Principal of University College.
(2) Report of the Dean of the Faculty of Medicine.
(3) Report of the Dean of the Faculty of Applied Science and Engineering.
(4) Report of the Dean of the Ontario College of Education.
(5) Report of the Secretary of the Faculty of Household Science.
(6) Report of the Dean of the Faculty of Forestry.
(7) Report of the Dean of the Faculty of Music.
(8) Report of the Dean of the School of Graduate Studies.
(9) Report of the Dean of the Faculty of Dentistry.
(10) Report of the Director of the School of Hygiene.
(11) Report of the Librarian.
(12) Report on Research.
(13) Publications.
(14) Report of the Director of University Extension and Publicity.
(15) Report of the Director of the Department of Social Science.
(16) Report of the Director of the School of Nursing.
(17) Report of the Director of the Department of Military Studies.
(18) Report of Health Services.
(19) Report of the Warden of Hart House.
(20) Report of the Director of the Connaught Laboratories.
(21) Statement regarding the Museum of Archaeology.
(22) Statement regarding the Museum of Biology.
(23) Statement regarding the Museum of Geology.
(24) Statement regarding the Museum of Mineralogy.
(25) Statement regarding the Museum of Palaeontology.

(1) REPORT OF THE PRINCIPAL OF UNIVERSITY COLLEGE

(Professor M. W. Wallace, M.A., Ph.D.)

I have the honour to submit my annual report as Principal of the College.

I regret that I have to record the death of Professor H. S. McKellar of the department of French on April 11th last. He had been seriously ill for more than a year but continued to meet his classes intermittently until within a few months of his death. Professor McKellar was one of the most efficient teachers on the college staff. After graduating from University College in 1893 he taught for many years in the Collegiate Institutes of Owen Sound and London, before his appointment to the French staff of the college in 1917. He was untiring in his devotion to the interests of his students and of the wider interests of the college, and his death has called forth the deepest sympathy of all his colleagues for Mrs. McKellar and his son and daughter.

Professor G. H. Needler has reached the age of retirement and relinquishes his position as head of the department of German. After graduating from University College in 1886 Professor Needler spent several years of graduate study in Germany from which he returned in 1891 to accept an appointment as lecturer in German in his Alma Mater. Few graduates of the college have had such a long and continuous association with its work, and few have been able to render it more distinguished service. Apart from his leadership in all matters relating to German studies in Ontario, Professor Needler was widely known for his military service in the North-West Rebellion of 1885 and as Officer Commanding the Overseas Training Company of the University from 1916 to 1919. No one has given more intelligent attention to the problems of secondary education in Ontario. He retires with the good-will and admiration of a host of friends.

Mrs. M. M. Kirkwood has resigned as assistant professor of English to become Principal of St. Hilda's College. For many years Mrs. Kirkwood has taken a major part in the life of the college both as Dean of Women and as a member of the department of English. In both fields she was eminently successful, and many of our women graduates will remember her unfailing kindness and helpfulness as an administrator quite as warmly as her power to inspire her students with a love of English literature. The whole staff of the college unite in their congratulations to Mrs. Kirkwood on her new appointment, and in their regret that once more we have been compelled to weaken our own forces in order to supply leadership to a sister institution.

It is a pleasure to record the appointment of Professor Barker Fairley as head of the department of German. Professor Fairley is one of the most distinguished scholars in the whole field of German studies, and the prospect of his return to University College has given great pleasure to all his former colleagues. The University of Manchester has just conferred upon him the degree of M.A.

The Governors have finally disposed of the question of free tuition for students holding college scholarships by cancelling all free tuition for scholarships won in course, but granting free tuition to all holders of matriculation scholarships. In other words matriculation scholarships which are worth $125 or more carry free tuition for the first year, and thereafter as long as the holder wins first class honours: scholarships of smaller value ($100 or $75) carry an allowance of $100 or $75 on the cost of tuition in each year. Accordingly we are now able to offer thirty-one matriculation scholarships ranging in cash value from $300 down, the great majority of which carry complete free tuition. It is a magnificent provision for able students entering on a university course who need financial assistance. On the other hand the loss of free tuition for scholarships won in course makes it highly desirable that we secure further funds for the encouragement of those students who are of first-rate calibre but who have entered college without matri-

culation scholarships. Fortunately our bursaries allow us to give very substantial assistance to such students.

During the session the college has received the following gifts:

(*a*) From Mr. Frank L. Bastedo ('09) of Regina the sum of $500 for the establishment of the Alma Anderson Bastedo Prize in memory of his wife, the prize to be awarded to the student who stands first in English in the third year of the Moderns course.

(*b*) From the Hollywood Theatre a renewal of the prize of $50 in oral French which was also given last year.

(*c*) From Dr. D. B. Macdonald, Chairman of the Board of Governors, a framed photograph of the University Commission of 1906.

(*d*) From General Fotheringham, a framed photograph of the University College class in Classics of 1883.

(*e*) From the Women's Undergraduate Association, $60 for the purchase of an urn for the Women's Union.

(*f*) From Miss Edith Cousins $10 for the purchase of a tray for the Women's Union.

(*g*) From Professor G. H. Needler a number of volumes on German literature for the Whitney Hall Library and also for the Women's Union Library.

The Alexander Lectures were delivered by Professor F. B. Snyder, Professor of English and Dean of the Graduate School in Northwestern University. The subject was *Robert Burns—His Personality; His Reputation; His Art.* Professor Snyder's biography of Burns is the most detailed and scholarly that has yet appeared, and his lectures delighted the large audiences that filled Hart House Theatre. They have been published by the University Press and immediately met with a wide-spread demand. Next year we expect the lectures to be given by Professor Nicol Smith of the University of Oxford.

The Public Lectures series of the year was opened by a course of four lectures on *Cartesian Thought* given by our distinguished colleague, Professor Etienne Gilson of the Institute of Mediaeval Studies. Professor Brett followed with two lectures on *Characteristics of Modern Thought.* Then came five lectures analysing modern tendencies or trends in socal science, economics, international relations, political thought and jurisprudence respectively, delivered by Professors Urwick, Bladen, Norman Mackenzie, Brady and Auld. The experiment of providing a number of afternoon public lectures which graduates and friends of the college are invited to attend has become a fixed feature of our academic year.

For the third year in succession the college has been honoured by having one of its members appointed to a Rhodes Scholarship. The present recipient is Mr. J. E. L. Graham who came to us from Saskatchewan, and who has led the course in political science in each of his four undergraduate years. Mr. Saul Rae, who has had a parallel record in sociology, and who during his fourth year was President of the Literary and Athletic Society, has been appointed to the Massey Fellowship. We welcome these honours as confirmatory evidence that the college remembers its primary function—the development of intellectual capacity in its members.

(2) REPORT OF THE DEAN OF THE FACULTY OF MEDICINE

(*J. G. FitzGerald, M.D., LL.D.*)

This communication is a resumé of certain of the activities of the Faculty of Medicine during the forty-ninth session which closed on June 30th, 1936. It contains also reports from eighteen academic departments, an outline of the work of the medical art service, notes from the Secretary's Office and accounts of some of the extra-curricular student undertakings.

Certain questions have, during the past two or three years, occupied much time of various committees of the faculty. These have included among many

others discussions of methods of improving the present courses of study; the development of a satisfactory and acceptable method of bringing about the limitation of undergraduate registration; means whereby bursaries and scholarships for most deserving students may be increased in number and value; what may be done to stimulate and increase the interest of students in the libraries of the University; steps which will lead (it is hoped) to still further integration of teaching and the lowering of departmental barriers and greater, all-round emphasis on the teaching of preventive principles and methods in many of the laboratory and clinical departments. The most interesting and possibly most promising effort to bring about improvement in teaching arrangements and methods has taken place in the department of surgery. With the reorganisation of the surgical services at the Toronto Western Hospital, the appointment of Dr. T. A. J. Duff as surgeon-in-chief as well as six other surgeons (four of whom have already held university appointments), plans have now been completed there to provide for clinical teaching in surgery for sixth, fifth and fourth year students. This is a most satisfactory conclusion reached after much effort. These additional facilities, too, obviate the necessity of assigning certain sixth year groups to the Hospital for Sick Children, an arrangement never regarded as satisfactory because it meant that such students were not afforded suitable opportunities for the study of surgical conditions occurring in adults. Clinical instruction for all fifth year students will, however, be given at the Hospital for Sick Children.

In the departments of surgery and obstetrics and gynaecology dissatisfaction with existing opportunities for clinical teaching has led, this year, to determined efforts designed to improve matters. In surgery the students have been assigned regular hospital duties under interne direction. The experiment, however, has been only partially successful owing to existing lecture schedules. To ascertain, if possible, whether a limited amount of summer clinical teaching in surgery for a group of twelve students could be given satisfactorily, an experiment is being made during the months of June, July and August, 1936. Three students have been attached to each surgical division at the Toronto General Hospital and one to a similar division at St. Michael's Hospital. The opportunities for much more satisfactory preparation of the students in surgery appear to exist and much is hoped for from this effort. At the end of the three months period these twelve students who have volunteered and been admitted to the course will be given a clinical examination in surgery. If successful they will not be required to undergo a further clinical test in the subject at the close of the sixth year. A similar experiment is to be made by the department of obstetrics and gynaecology with a view to improving the clinical instruction in obstetrics. This is exceedingly important because of the place this subject should occupy in the medical curriculum.

A proposal emanating from the department of surgery looking to the extension of the final year from thirty to forty-eight weeks has been discussed in a preliminary fashion in the Committee on Curriculum and Examinations and is likely to receive further study and consideration. There is little doubt that the present break between fifth and sixth years when students should be (and many are, in an unorganised fashion) deeply engrossed in clinical studies, might well be superseded by some more suitable arrangement.

The unfortunate overcrowding, resulting from the admission of too large a number of undergraduates in the first year, continues. The observations made by two of my colleagues in reference to this question may be cited. Professor W. E. Gallie writes: "Each year I bring to your attention the calamitous effect of the constantly increasing numbers of our students on the quality of our teaching. I have no thought that it is the function of the Medical School to attempt to teach the art of surgery to undergraduate students, but it is becoming increasingly difficult, owing to the numbers, to teach them the bare essentials that are necessary for general practice. Besides interfering with the quality of our clinical teaching, the number of students is creating a nuisance in the hospitals. . . .

We simply must find a way to limit the number of students coming into the clinical years". With that view I am in complete and entire agreement.

It might not be so serious if our students were of such quality that medical science and the community would likely suffer were some of them not afforded a medical education (at least in this University). To allay any apprehension which might arise on those grounds I may quote from the report of one other colleague, Professor J. C. B. Grant, who states: "Our best students are excellent; our poorest students are numerous and extremely poor". The number of those who every session are "repeating" confirms this observation. The situation is one which should be remedied and in this report I desire once again to make a plea for limitation in the number of students admitted to classes in this faculty.

Attention was last year directed to the commendable action of the undergraduate Medical Society in again donating the surplus on operations of the society to the Board of Governors to provide modest bursaries for worthy students in need of financial assistance. The Medical Society contribution to which was added a sum provided by the Board of Governors, made possible the award of thirty-seven bursaries in all. These ranged in value from fifty to one hundred dollars. This most admirable arrangement is unique in this University and those undergraduates in medicine who are responsible are to be congratulated upon the wisdom they have shown in this connection. The thanks and appreciation of the Faculty are hereby tendered to the Medical Society.

Bursaries and scholarships and suitable criteria for admission to this faculty may some day mean that no boy or girl in this province who is a worthy candidate for a place in the profession of medicine will be denied admission or be unable to proceed with medical studies for economic reasons. State scholarships as well as those founded by private benefactors would hasten the arrival of that day. From the standpoint of the community as well as that of the profession it is a consummation devoutly to be desired.

The teaching of preventive medicine is not the responsibility of any single department in this faculty. Those which contribute largely to the present plan of instruction include: Hygiene and preventive medicine, medicine, paediatrics, psychiatry, obstetrics, physiology. Then too, the departments of the School of Hygiene and Connaught Laboratories also participate in the preparation of the undergraduate in public health and preventive medicine. While further progress can still be made it is not too much to claim that in this University the medical student has almost unique opportunities for becoming acquainted with the principles and methods of preventive medicine and with the opportunities which exist for the practice of preventive as well as of curative medicine. This year, as well, students in the fifth year during their field course have learned something of the social resources of the community. For this we are indebted to Miss Margaret Gould of the Child Welfare Council and to Miss Frieda Held, M.A., Assistant Deputy Minister of Labor.

This faculty in October had the pleasure of entertaining those who attended the annual meeting of the Association of American Medical Colleges. This was the first occasion upon which the Association has met in Toronto. Interesting and valuable discussions of various topics combined with the opportunity afforded of informal discussions of teaching problems between sessions and the social intercourse rendered possible by the assembly of representatives of eighty universities in the United States and Canada made the occasion altogether noteworthy. It was a source of great pleasure and gratification to his colleagues in this faculty when Dr. E. Stanley Ryerson, assistant dean and secretary, was named president-elect of the association for the next year.

In November 1935 representatives of the Council on Medical Education and Hospitals of the American Medical Association and of the Association of American Medical Colleges visited departments of the Faculty of Medicine and the teaching hospitals. This was really a survey of the present facilities and organisation of this faculty as a part of a study of medical education in all so-called

"Grade A" schools in the United States and Canada. The reports of this enquiry will be compiled and arranged by Dr. H. G. Weiskotten, Dean of the School of Medicine of Syracuse University, who has served as director of the study. Dr. Ryerson assisted in the survey of a number of medical schools both in Canada and the United States. Such periodical enquiries into the existing status of medical education, the scrutiny of methods of instruction and the organisation of courses of study, glimpses of the physical plant and equipment, and finally, careful consideration of the resources of each school in research and teaching personnel, undoubtedly serve many useful purposes. Complacency and satisfaction with present accomplishments are more than likely to be disturbed by visits from colleagues whose business it is to point out our shortcomings and inadequacies both in plans and methods.

In 1935 the College of Physicians and Surgeons of Ontario ceased to conduct examinations. The certificate of the Medical Council of Canada indicating that the candidate for registration has passed the examinations conducted by the Council is now accepted by the College as completing its requirements. Reference to this forward step has already been made. This year the College has raised the entrance requirements for registration as a medical student to conform to those of the universities in Ontario. Now remains the development and adoption of a plan acceptable to the Council, the College and the universities in this province whereby university degree and certificate and licensure may be obtained by passing one not two sets of examinations.

The undergraduate Medical Society has for many years past published a very creditable "Medical Journal". The editorial direction and business management are entirely in the hands of members of the Society. A member of the Faculty of Medicine serves in an advisory capacity to the editorial board. Thus far subscription to the Journal has been voluntary upon the part of medical undergraduates. This year the Society, having revised its constitution with the overwhelming approval of members of the Society, the Faculty of Medicine and the Board of Governors, gave approval to new constitution. This provides for an increase in the membership fee from three to four dollars. This fee will cover free subscription to the "Medical Journal" in addition to other privileges of membership heretofore enjoyed. It is anticipated that in future years any surplus on operation of the Society will be contributed to the Bursary Fund to which reference has already been made.

This session, Lister Day fell on Sunday and in consequence the ninth Donald C. Balfour Lecture in Surgery was delivered on Monday, April 6th. The lecturer was Dr. Melvin S. Henderson of the Mayo Clinic, Rochester, Minnesota. The title of the address was "Orthopaedic Surgery, an Historical Review". Dr. D. E. Robertson, a classmate of Dr. Henderson, moved the vote of thanks, upon conclusion of an interesting address. A few days thereafter Dr. Robertson was one of the victims of a mine cave-in and for ten days his colleagues shared with his relatives and literally thousands of friends and well-wishers not only in North America but in all parts of the world the gravest anxiety as to his survival. To the profound thankfulness and gratification of all, Dr. Robertson's life was spared and his colleagues rejoice that he has been enabled to continue the splendid service he has for long years rendered to mankind and very especially to crippled children.

His Honour the Lieutenant-Governor once again placed the Faculty of Medicine under a debt of gratitude by graciously entertaining for the Donald C. Balfour lecturer, the President of the University, a number of members of the Senate, heads of departments and others. His Honour also attended the Lister Day celebration.

Very successful post-graduate courses have been given during the session. Those provided by the departments of surgery and paediatrics were conspicuously successful and largely attended. In the past year members of the Faculty of Medicine to the number of sixty have participated in the extra-mural post-

graduate medical meetings held under the auspices of the Ontario Medical Association. One hundred and sixty lectures in all were given. It is perhaps not generally realised the extent to which members of this faculty participate in such post-graduate work. The task of maintaining a high level of professional competence among members of the medical profession in the constituency served by this University is fully appreciated.

The Charles Mickle Fellowship, "awarded annually to that member of the medical profession who is considered by the Faculty of Medicine to have done most during the preceding ten years to advance sound knowledge of a practical kind in medical art or science", has this year been given to Dr. Donald D. VanSlyke of the Rockefeller Institute for Medical Research for his work on methods of blood analysis and gasometric microanalysis, also for his work on respiratory and renal functions, on diabetes and nephritis, and in general, for his investigations in the field of quantitative clinical chemistry. The Ellen Mickle Fellowship has been awarded to Omand M. Solandt, M.A., B.Sc.(Med.). Dr. Solandt further distinguished himself by winning the Faculty Gold Medal, the Chappell Prize in Clinical Medicine, the William John Hendry Memorial Scholarship in Obstetrics and Gynaecology, the Ontario Medical Association Prize in Preventive Medicine, the Canadian Medical Institute Prize and the David Dunlap Memorial Scholarship in Psychology. A notable record.

The John Copp Bursary to which brief reference has previously been made was established in memory of the late John Copp. The purpose of the bursary is the advancement of medical education in the University of Toronto. The income from the trust is awarded to the student in this University who is eligible for admission to the fourth year. The award is made upon the recommendation of a committee which takes into account, in making a recommendation, the character, athletic ability, scholarship and general interests of those nominated, so that "the holder of the bursary should possess those qualities and attain a high standard in each, but in no one to the exclusion of the others; the holder to have qualities and attainments as much like the late John Copp as possible". It is further stipulated that while the recipient of the bursary must be a good student it is clearly understood that the other characteristics mentioned above as well as scholastic attainment must be possessed by the person recommended for the award. The nominee in 1935 was Mr. M. F. Williams, president of the fourth year class, and in June 1936, Mr. C. Cameron Gray was awarded this bursary. Two very worthy recipients.

To Dr. E. Stanley Ryerson has come election to the office of President of the Association of American Medical Colleges. Dr. H. C. Parsons has been made a Fellow of the Royal College of Physicians of London. A similar honour has come to Sir Frederick Banting. Dr. K. G. McKenzie has been elected President of the Harvey Cushing Society. Dr. M. M. Crawford has been appointed physician to the Canadian Olympic team to visit Berlin in August 1936. The Dean of the Faculty was reappointed a Scientific Director of the International Health Division of the Rockefeller Foundation for a three-year period. He has also been made a member of the Permanent Commission on Biological Standardisation of the Health Organisation of the League of Nations. The Rockefeller Foundation has invited him, also, to undertake for a period of one year from the middle of September 1935 a study of the methods at present employed in the teaching of preventive medicine in medical schools in the United States, Canada, the British Isles and Europe.

Sir Frederick Banting, Professor C. H. Best, Dr. W. R. Campbell, Dr. E. T. Waters, among others, attended sessions of the International Physiological Congress in Leningrad in August 1935. Professor Best spent the month of February as guest lecturer in Physiology at Yale University. The Morris Herzstein Lectures at Stanford University Medical School were delivered in San Francisco in March by the Dean of the Faculty. Dr. E. S. Ryerson attended the meetings of the Congress on Medical Education held in Chicago in March, and Dr. J. H.

Elliott attended the Tenth International Congress on the History of Medicine in Madrid and Toledo in the autumn of last year. Dr. D. T. Fraser delivered a DeLamar Lecture at the School of Public Health, Johns Hopkins University, in April 1936.

The members of the Faculty of Medicine deeply regret the loss by death during the year of Dean F. B. Allan, for many years a most valuable and helpful colleague held in the highest esteem by all. They most deeply mourn also the loss of a former colleague and friend, Sir John McLennan, for many years a highly valued member of this faculty. The death of Dr. Graham Chambers, for a lengthy period a clinical teacher in the department of medicine, is sincerely regretted. The passing of Dean Seccombe of the sister Faculty of Dentistry during this session was the occasion of sorrow to his colleagues in this faculty. The death of Professor I. V. Pavlov, world famous physiologist and Charles Mickle Fellow in 1921, is here recorded with regret.

Dr. F. A. Clarkson retires this year as assistant professor of medicine. He carries with him into retirement the thanks and best wishes of the Faculty of Medicine. Dr. C. B. Weld has resigned his appointment as assistant professor of physiology upon his appointment to the chair of physiology in Dalhousie University. Dr. Weld has been a valued member of this University for several years past and sincere thanks for splendid service and every good wish for success in his new field are hereby extended to him. Dr. James Wood has resigned as demonstrator in surgery, Dr. J. C. Calhoun and Dr. M. B. Whyte as senior and junior demonstrator respectively in oto-laryngology. To all three gentlemen it is desired to express warm thanks for the services which they have given to the University. Dr. J. G. FitzGerald has resigned as Dean of the Faculty of Medicine, and Dr. W. E. Gallie has been appointed by the Board of Governors to serve as Dean for a three-year period from July first 1936.

(3) REPORT OF THE DEAN OF THE FACULTY OF APPLIED SCIENCE AND ENGINEERING

(*C. H. Mitchell, C.B., C.M.G., C.E., D.Eng.*)

Again a most satisfactory report can be made with regard to the academic work in the Faculty of Applied Science and Engineering. The session 1935-36 may be regarded as a highly successful year, both in the undergraduate and graduate portions of the faculty work, as well as in the research achievements carried out by the School of Engineering Research.

The standard of work in the various departments of the Faculty, as performed by both staff and students, has been of a high order. It is observable that the marked application, interest and painstaking attention to their work by the members of the staff of all grades, has inspired a conspicuous reaction on the part of the students. Such a result is highly gratifying and is especially commendable in academic work in the realm of applied science education. One factor contributing to this is the manner in which members of the staff keep in touch with engineering projects both directly by their own professional activities and indirectly by keeping themselves informed of engineering progress in its ever changing features and applications.

The students on their part have continued to take a serious and earnest interest in their academic work while, at the same time, engaging in the many university and outside professional activities for which the students of this faculty are notable. This combined interest, encouraged as it is by the staff has a most, desirable effect in binding more closely staff, students, graduates, and the profession generally. Where, as in this case, a profession bears a direct relation to the material progress and development of the country, such cooperation is greatly to be desired and enables a university, with its alumni, to exert consider-

able direction and no small influence in the upbuilding of a young country like Canada.

The continued attendance of students in large numbers in this faculty demands renewed attention. As each year goes by in this recent cycle of depression and recovery, it is quite evident, if attendance at an engineering faculty in this country can be, as it is, a barometer of conditions, that the thinking people believe Canada is approaching a fresh advance in its development. In this I personally believe, because all the signs of reaction from the depression point that way. The reasons are more definitely apparent as we go through our annual stocktaking at each new year. For these same reasons I believe Canada will still continue to require engineers and applied scientists in large numbers for some years to come and even in increasing numbers. For these reasons, too, I am of opinion that the in-flow of students preparing themselves for such a key profession should not be discouraged.

It is of interest in these respects to observe the varying numbers of students in attendance in Applied Science in this University during the past fourteen years. It is of especial interest to note that in the past six years the attendance, while having reached a peak in 1932-33 and having naturally somewhat fallen off during the depression, still continues at a high figure, greater than during the first eight years of the fourteen year period, the slight decline in the past three years being quite out of line with what might have been expected during the severe depression we have just passed through. Further, it should be observed that the increasing numbers of the incoming first years has become quite marked the past two years. All this significantly indicates the estimate which the people of Ontario and Canada generally make of the engineering prospects of the country in having their sons obtain an applied science education. To illustrate the foregoing observations, the following table of attendances will be of interest:

ATTENDANCE IN FACULTY OF APPLIED SCIENCE

	Years					*Total Attendance*
	I	II	III	IV	V	
1922-23.....	139	167	182	265	–	743
1923-24.....	125	127	150	165	–	567
1924-25.....	116	121	113	138	–	488
1925-26.....	126	107	119	93	–	445
1926-27.....	163	110	110	104	–	487
1927-28.....	192	149	109	100	–	550
1928-29.....	204	165	131	100	–	600
1929-30.....	276	158	150	117	–	701
1930-31.....	329	231	151	139	–	850
1931-32.....	281	286	175	139	–	881
1932-33.....	265	250	236	157	6	914
1933-34.....	226	238	203	207	9	883
1934-35.....	221	189	198	179	8	795
1935-36.....	248	175	160	176	7	766

The foregoing table, however, indicates only the general situation with respect to the total numbers in the faculty year by year. An analysis of the figures by departments in the general fields of engineering, presents quite a different picture. The varying numbers in the fields of civil, mechanical, electrical, mining, metallurgical, and chemical engineering, and architecture, give considerable food for thought. I have, at various times the past few years, drawn attention to these, more especially pointing out the wide swings by which, either by popularity, fashion or considered judgment, incoming students have refrained from entering some departments and have crowded into others. Examples of these, at the present time, at opposite ends of the scale, are those of civil engineering and chemical engineering.

In recent years the number of students entering civil engineering has notably decreased, although there is now discernible a definite swing upwards. The downward swing has continued too long and despite the view oftentimes expressed the

past five or six years, that this branch has a restricted future, the cumulative effect is apparent that we have been educating too few civil engineers. This cannot quickly right itself, although it is now slowly doing so. It is quite evident that, with returning prosperity and construction activity, we will be faced in this country with a shortage of young civil engineers in the course of the next three or four years.

On the other hand, the situation in the field of chemical engineering is the reverse. We have observed a rapidly increasing number of students entering this branch of the profession. The swing, moreover, seems to be continuing as evidenced by the increasing numbers of students entering the first year the past few years. Up to a certain point this increase should not have been discouraged as the country can now absorb a great many more chemically trained graduates for its varied industries than it could, say ten years ago. That the reasonable proportion has now been passed, is indicated by the numbers recently in the first year of this department, viz.:—68 in 1932, 80 in 1933, 81 in 1934, and 82 in 1935, because these have composed 24%, 30%, 36%, and 37% of the total number of students in the first years of those respective sessions.

The disturbing feature of this rapidly increasing registration in chemical engineering, so far as our instructional capabilities are concerned, lies in the inadequate facilities at our disposal in both accommodation and equipment for efficiently providing for such large numbers of students in this department. In this regard I can only repeat the plea I have continuously put forward the past six years or more, urging greatly needed increased accommodation necessary for even a portion of those now seeking an education in chemical engineering. Even if the present large numbers were decreased by thirty per cent., we would still be quite inadequately served by our present facilities.

A notable feature of the past session has been the observance of the fiftieth anniversary of the founding of the Engineering Society, the students' organisation in this faculty This Society was primarily founded to form an adjunct to the academic work of the faculty in the early days when it was the School of Practical Science. This object has carefully been kept in mind as the faculty has continued to encourage the Society in its functions of presenting to the student body papers and addresses by prominent engineers and others, directing student activities and representing the faculty as a whole in general university affairs. The students are again to be congratulated on the excellent manner they have carried these out and especially on the successful anniversary and reunion they brought about, thus enlisting the interest and attention of the graduates and binding them more closely to the University and its general interests.

Although again provided with but a very small appropriation, the School of Engineering Research has carried on through the year with those researches which were considered to be most urgent. Some of these were continuations of ones previously undertaken and several were new ones in fields and on subjects which are pressing for consideration. The difficult problem in laying down a research programme at this time, is to decide what are the most urgent subjects for research having regard to the financial stringency. The members of the staff of the faculty are to be complimented upon the attention and the interest they have given to pressing researches under these conditions, when funds for assistance and necessary equipment are so limited. A full report of the subjects and objects of research and the progress that has been made during the session, is being forwarded by the Committee of Management of the School of Engineering Research.

It is with very much regret we have to face the retirement of Professor T. R. Rosebrugh, professor of electrical engineering and head of the department. On reaching the retiring age limit, we realise Professor Rosebrugh has been a member of this staff for forty-seven years and his valuable and diligent service in his instructional work, his sound administrative ability, his thorough scholarship and his unending help to the graduates and the profession will long be remembered.

(4) REPORT OF THE DEAN OF THE ONTARIO COLLEGE OF EDUCATION

(Dr. J. G. Althouse)

The registration of the session 1935-36 was lower than that of 1934-35. Inclusive of the extramural students, the total number registered in the courses for teachers was 774 as against 930 in 1934-35. The most marked decrease is seen in the High School Assistants' course. It is interesting to note that the proportion of those seeking specialist standing has increased.

Some noteworthy changes have occurred in the work of the College. Continuous practice-teaching was introduced in the second term of the session. Professor Griffith Taylor inaugurated a special course of lectures in cultural geography.

The registration in the librarians' course was 55 and the demand for trained librarians for the public and special libraries of Ontario was relatively satisfactory. The Senate of the University has met the demand for the recognition of the courses offered by the Library School by establishing a course leading to the degree of Bachelor of Library Science. This course will be offered for the first time in 1936-37. The diploma course for those entering the Library School without previous graduation from a recognised University will be continued.

Dr. Sandiford, director of the department of educational research, was absent on leave at Stanford University from January 1st, and Dr. J. A. Long was acting director. Dr. W. Line of the department of psychology of the University assisted in the course in science of education in the College of Education. During the session, the department of educational research published two bulletins, completed the study of the financial support of the schools of the province, and began the study of the prognostic value of the marks in practice-teaching obtained by the teachers-in-training. This study has been undertaken through the generosity of the Carnegie Corporation, which has approved the application for this purpose of the balance of the grant originally made for language study. Dr. M. A. Cameron, assistant professor of educational research, will conduct the study.

Dr. Michael West, professor in the department of educational research, who was on leave for the 1934-35 session, resigned in order to undertake an investigation in basic English for the Carnegie Corporation.

(5) REPORT OF THE SECRETARY OF THE FACULTY OF HOUSEHOLD SCIENCE

(Professor C. C. Benson, Ph.D.)

Satisfactory progress has been made during the year, with a slight increase in registration from 45 to 53 for total registration in all years. This is chiefly due to the larger number of students who have come to us from Macdonald Institute. There have been 23 of these students with us this year, three in the fourth year, eight in the third year of the specialist course, and twelve in the pass course of that year, and in general their work has been satisfactory.

Like some others of Macdonald students of recent years, several of them have, however, experienced difficulty with the courses in chemistry, and a meeting was held during the year when means of lessening this difficulty were discussed. Dr. Christie, with three of the staff from Guelph, came here for this meeting; certain adjustments are already being made, and it is planned to hold similar meetings in the future, with the hope of properly fitting courses at Guelph and those given here.

There have been several changes of staff in the Faculty. Miss Charlotte Valentine, M.A., assistant professor of household science, retired last spring to

be married, and Miss Edna Park, M.A., was promoted to the assistant professorship, with Miss Jessie Roberts, M.A., M.Sc., coming to us as lecturer in household science to carry on Professor Valentine's special work.

The most serious change, however, is the retirement of Professor Laird, who is resigning from the direction of the department of household science after twenty-five years of whole-hearted, and faithful service. During this time she has established a strong department, and has had a large share in training graduates who are now doing good work as dietitians, teachers of household science, or as heads of their own households. The loyal affection of the graduates in household science—from this Faculty and from the department of household economics in the Faculty of Arts—was shown in their gift of her portrait to the University, and well expressed at the large gathering of these graduates who met to do honour to her at the time of the presentation.

(6) REPORT OF THE DEAN OF THE FACULTY OF FORESTRY

(Dr. C. D. Howe)

The enrolment in the Faculty of Forestry continues to decrease. This year, thirty-seven students were in attendance compared with fifty-two in the previous year. The entrance class of this year was not large enough to overcome the diminution caused by the removal of twenty-two students in the graduating class of '35, the largest graduating class in the history of the Faculty. The reduction in attendance is undoubtedly due to political and economic causes. The displacing of trained men in the administration of the fire protection staff and the complete cessation of forest investigative work in Ontario close for the time being one half the field of employment for our graduates. The plea that this has been done on the basis of economy is quite plausible but in the long run it will cost the people of the province much more than will be saved. The use of untrained men and the reversion to primitive methods in fire protection may seem apparently justified in wet seasons but will lay the country open to widespread destruction of life and property in the extremely dry seasons which occur periodically. The abandonment of forest research work means delay in the development of measures eventually to place our forests on a continuous production basis and thus places in jeopardy the future prosperity of wood-using industries.

The two principal fields of employment now left open to our men are the pulp and paper industry and the Dominion Forest Service. The former took seven of the fourteen of this year's graduates and the latter three. One went to the Dominion Entomological Branch and one to the wood using department of an agricultural implement manufactory. Thus eighty-five per cent. of the graduates have found employment and practically all of them were assured positions before they were actually graduated. This latter is something that has not happened since the depression began. The three following classes will probably average not more than eight at the time of graduation, so even if the conditions of employment are no better in the immediately following years, we will not have enough men to meet the demand. As soon as this fact is publicly known our enrolment will undoubtedly increase.

Since it is probable that most of our men will go to private industries for the next few years at least, we have rearranged our practice camp so as to give the students a more intensive training in woods work. Instead of six weeks at the beginning of the fourth year the practice camp work hereafter will be given for three weeks at the end of the first, second, and third years. The site of the camp has been transferred from Algonquin Park to a more accessible area in Haliburton county. It also has a greater variety of forest conditions. The area is being carefully studied and surveyed from the standpoint of a permanent location.

(7) REPORT OF THE DEAN OF THE FACULTY OF MUSIC

(Sir Ernest MacMillan)

During the session 1935-1936 the number of students registered was 40, in the course leading to the degree of Bachelor of Music; 10 registered in the first year, 16 in the second year and 14 in the third year. The degree of Bachelor of Music was conferred on four, and the degree of Doctor of Music on three candidates.

The usual series of lectures have been given by members of the Faculty, and 9 students have been registered for special tutorial classes.

Six organ recitals were given during the season in Convocation Hall, arranged by Dr. Healey Willan, four of which programmes were played by Dr. Willan, and the other two by Mr. D'Alton McLaughlin and Mr. Frederick Silvester respectively. At the second of these organ recitals Dr. Willan was assisted by Mr. George Lambert (baritone) and the choir of the Church of St. Mary Magdelene.

The Conservatory Choir has appeared twice in Convocation Hall in performances of Handel's "Messiah" and Bach's "Saint Matthew Passion" on February 29th and April 7th respectively, and has also sung Brahms' "Requiem" and Beethoven's "Choral Symphony" in Massey Hall with the Toronto Symphony Orchestra. The Conservatory Orchestra, under the direction of Mr. Ettore Mazzoleni, gave a concert in Convocation Hall in January and appeared twice in Massey Hall during the spring. Other Conservatory organisations, notably the Conservatory String Quartet, have made valuable contributions to the musical season in Toronto.

The musical activities of Hart House have continued to hold the interest of the students. The progress made during the last season by the Hart House Glee Club under Mr. (now Dr.) Charles Peaker has been noteworthy. A valuable contribution to the musical life of the University has been made by the Hart House String Quartet in its special series of students' concerts in Convocation Hall. The Carillon recitals given in the Memorial Tower by Mr. J. L. Richardson are as always a popular feature of the musical life of the University.

The Toronto Conservatory of Music celebrates this year the fiftieth anniversary of its incorporation, although it was not actually opened until 1887. The first function connected with this event took the form of a Jubilee Reunion in March under the auspices of the Conservatory Alumni Association. This was followed by a Jubilee Concert in Massey Hall on April 27th and additional functions have been arranged for the autumn. Historical data regarding the Conservatory has been collected by Dr. Horwood who has also prepared a short historical record which appears in the Year Book for 1936-37.

The Conservatory will greatly miss the active help of Miss Marion Ferguson, who has been registrar since its foundation, and who is retiring this year. Miss Ferguson has devoted her life to the building up of the institution; her quiet efficiency, kindliness and tact have made for her thousands of friends throughout Canada.

The vice-principal, Dr. Healey Willan, after an unbroken record of twenty-three years' service with the Conservatory, is being given a year's leave of absence, and will devote himself chiefly to composition. Mr. Norman Wilks will fill the office of executive assistant to the principal, and minor re-adjustments will be made in the administrative staff.

The Conservatory has been fortunate in securing the active co-operation of so many outstanding men to serve on its board. Last autumn, Colonel F. H. Deacon consented to accept the post of chairman, left vacant through the death of Sir Albert Gooderham, and with Mr. Floyd Chalmers as vice-chairman, heads a board whose courageous handling of the many problems which arise, promises to bear excellent fruit in the years to come. The untimely death of Mr. W. R. P.

Parker removed from the Board one of its new members who, had he lived, would have doubtless proved a great source of strength to the institution.

The number of candidates entering for the examinations of the Toronto Conservatory of Music for the present season has been 14,109—as compared with 13,660 for the season 1934-35.

A proposal introduced into the Senate in March, to create a new honour Arts Course with music as one of the principal subjects, will be considered at length in the early autumn, and it is to be hoped that it will be established by the time the calendar for 1937-38 is issued. The claims of music to a prominent place in all educational schemes was never more fully recognised than they are to-day, and public interest is awake to the importance of the questions involved.

(8) REPORT OF THE DEAN OF THE SCHOOL OF GRADUATE STUDIES

(Professor G. S. Brett)

The number of students registered in the School of Graduate Studies for the year 1935-6 was 613. The number for the previous year was 614. Apparently the decrease noted in the report for 1934-5, which amounted to 100 or approximately 14 per cent, has not continued. The total enrolment for this year is practically identical with that of the previous year and the enrolment for the different degrees shows only minor fluctuations: the number of men enrolled as candidates for the M.A. increased by 16, the number of women candidates decreased by 18: the number of men candidates for D.Paed. increased by 15, the number of women remaining unchanged: candidates for M.S.A. decreased from 13 to 4: for the other degrees the numbers varied very little. The total number of men increased from 438 to 452; the number of women decreased from 176 to 161.

The number of students resident in the Province of Ontario was 437, a decrease of 28; the number from Toronto was 257 (a decrease of 12); from the other parts of the Province 180 (a decrease of 16). (For details see p. 162.) The number of students from other Provinces of Canada was as follows:—Nova Scotia 21, New Brunswick 20, Prince Edward Island 4, Quebec 5, Manitoba 20, Saskatchewan 27, Alberta 11, British Columbia 16. These figures show no significant deviation from the previous year with the exception of the number from Saskatchewan which rose from 17 to 27. The number from other countries rose from 48 to 52, being composed as follows: 29 from the United States, 6 from England, 3 from India, 1 from Denmark, 2 from Japan, 3 from China, 1 from Germany, 1 from Ireland, 3 from British West Indies, 1 from Switzerland.

The number of institutions represented was 49. Out of the total number registered 176 held staff appointments (an increase of 11); 352 took their first degree at Toronto, 40 at Queen's, 39 at McMaster, 25 at Western Ontario.

The distribution of the candidates for the different degrees was as follows:—

Ph.D.	143
M.A.	156
M.S.	2
M.A.Sc.	11
C.E.	2
E.E.	2
D.Paed.	100
M.Sc.F.	2
M.Sc.(Dent.)	3
Mus. Doc.	3
M.S.A.	4

The distribution of the candidates according to their major subject was as follows:—Anatomy 1, applied mathematics 5, anthropology 3, astronomy 2, bio-

chemistry 12, biology 24, botany 17, chemistry 41, chemical engineering 7, civil engineering 4, classics 23, dentistry 3, educational theory 3, English 62, epidemiology and biometrics 2, food chemistry 7, forestry 2, geology and palaeontology 9, Germanic languages and literature 10, history 27, household science 7, hygiene and preventive medicine 1, law 9, mathematics 12, mechanical engineering 3, mineralogy 5, mining engineering 3, music 3, pathology and bacteriology 7, pathological chemistry 5, pedagogy 100, philosophy 51, physics 29, physiology 14, physiological hygiene 1, political science 18, professional degrees 4, psychiatry 2, psychology 43, romance languages 16, semitic languages 9, surgery 2.

The number of students recommended for degrees this year was as follows:—

Ph.D.	36
M.A.	84
M.S.	1
M.A.Sc.	11
C.E.	2
E.E.	1
M.Sc.F.	2
Mus. Doc.	3
D.Paed.	2
M.Sc.(Dent.)	2
M.S.A.	1

Fellowships:—The Open Fellowships which are awarded by the Council of the School have for some years been four in number: two of these were given for a stated period of time: as one lapsed and the other was not definitely renewed before the end of the session, the Council made only two definite awards. These awards were made as follows:—

G. J. Kane, B.A. British Columbia; department of English.
M. D. Darrach, M.A. British Columbia; department of biochemistry.

Appointments to other fellowships made by the Council of the School were:—

Alexander Mackenzie fellowships:—
G. F. Butler, M.A. Dalhousie; department of history.
A. Stewart, B.A. Western Ontario; department of political science.
Ramsay Wright Scholarship:—
W. B. Stallworthy, B.A. Toronto.
McLennan award:—
K. C. Mann, B.Sc. Saskatchewan, M.A.

Fellowships tenable in the School of Graduate Studies were awarded as follows:—

War Memorial Fellowships:—
William B. Spears, B.A. Western Ontario.
S. A. Jennings, B.A.
Maurice Cody Fellowship:—
H. D. Woods, M.A. McGill.
Leonard Fellowship:—
C. T. Bissell, B.A.

The following members of the School of Graduate Studies obtained scholarships or fellowships for advanced study in other institutions:—

Royal Society Fellowships:—
H. N. Frye, B.A.
T. A. Goudge, M.A.
1851 Exhibition:—
A. D. Misener, M.A.
S. L. Cohen, B.A. McM., Ph.D.

The Dean attended the annual meeting of the Association of American Universities held at Cornell University, November 1935.

(9) REPORT OF THE DEAN OF THE FACULTY OF DENTISTRY

(Arnold D. Mason, D.D.S.)

During the year the different departments of the Faculty of Dentistry have progressed very harmoniously. The regrettable passing of Dean Wallace Seccombe shed a gloom over the whole Faculty as he was held in such high esteem and respect by every member of the staff. His death interrupted to some extent the activities of the Faculty but emergent adjustments were made as quickly as possible. Doctor Seccombe was a strong force in the development of dental education and the improvement of dental practice in Ontario, and even elsewhere, and my only hope is that I may build well on the fine structure he has erected.

The registration of students in the regular dental course was 192, an increase of 9 over last session. Three candidates enrolled for the B.Sc.(Dent.) degree, and one completed the requirements this year and was awarded the degree. Two graduates received the degree of M.Sc.(Dent.). Twenty young women were accepted for the course in Dental Nursing.

Fifteen dental graduates of other universities entered the final year and proceeded to the degree of Doctor of Dental Surgery. Of these 4 were from England, 11 from Australia and 1 from the United States. Three were graduates of Guy's Hospital and the others from the following universities: 1 Manchester, 5 Melbourne, 6 Sydney and 1 Marquette. Dean A. W. Lindsay, on furlough from West China Union University, spent the year at his *alma mater* on a study which qualified him for the degree of Master of Science in Dentistry.

Two post-graduate courses, each covering one week, were held in the subjects of oral surgery and anaesthesia, and in periodontology and radiodontia, and were attended by 18 dental practitioners from various points in Ontario, Nova Scotia and United States. These dentists felt that the instruction received would be of much value in their dental practice. No additional expense to the University was incurred by these courses.

Four other graduates, one from Calgary, Fredericton, Toronto and Ohio, attended for short refresher courses in orthodontia, ceramics and oral surgery. These men expressed their appreciation of the efforts of the Faculty and received considerable benefit from their instruction.

Through the generosity of the Board of the Royal College of Dental Surgeons of Ontario and in conjunction with the University, many members of the Faculty were able to carry the most recent methods to dental practitioners, even in remote parts of the province. This helps to keep the dentist in practice informed of new trends in dental thought and improve the standard of service rendered to the public. Thirty-seven meetings were held in twenty-one different centres under this extramural plan, and were addressed by fourteen members of the Faculty.

During the year many practitioners and students from other faculties have made use of the dental library in addition to the students of this Faculty, and it is a matter of but a short time until added facilities will be necessary to adequately house the books and museum specimens in possession of the department, as well as leave accommodation for reading.

This year the University for the first time granted the diploma in dental nursing. This will unify the arrangements for this course and is much appreciated by the Faculty.

The report of the Curriculum Survey Committee of the American Association of Dental Schools is being studied by the heads of departments and other members of the staff, and a comparison made with the curriculum of this Faculty. Some reports have already been submitted and changes that it is felt will improve the instruction to undergraduates are contemplated. The late Dean Seccombe, who was Chairman of the Curriculum Survey Committee, was keenly interested in this survey and the report was published in book form just previous to his last illness. The report is being dealt with in accordance with the plans he proposed.

At the annual meeting of the American Association of Dental Schools in March, I had the honour of being elected to the Survey Committee which is now proceeding with a study for the improvement of methods of teaching, development of graduate instruction and the training of dental teachers.

(10 REPORT OF THE DIRECTOR OF THE SCHOOL OF HYGIENE

(*J. G. FitzGerald, M.D., LL.D.*)

A decade has passed since this School was established in the University. To provide facilities for the teaching of preventive medicine and public health, to establish friendly and helpful relations with official and voluntary agencies in the fields of public health and social work, to maintain intimate and cordial co-operation with the Faculty of Medicine, to assume responsibilities with Connaught Laboratories for university activities not otherwise feasible, were some of the reasons why a School of Hygiene was organised.

From the first it has been recognised that graduate students from all parts of the Dominion of Canada and elsewhere should be offered courses leading to the degrees of doctor of philosophy and master of arts and the diploma in public health. Also it was an acknowledged responsibility of the School to organise and conduct suitable courses of instruction for undergraduates, medical and other, in this University. These activities required to be integrated with research and investigation. This is made possible through grants and otherwise, by Connaught Laboratories. Each year the departments of epidemiology and biometrics, of physiological hygiene and of chemistry in relation to hygiene receive from Connaught Laboratories substantial grants which make possible the investigation of problems of interest and importance. The academic staffs made up largely, but not exclusively, of Connaught Laboratories personnel, have also administrative responsibilities. They are thus investigators, teachers and administrators in the complete discharge of their duties.

No new courses of instruction have been developed during the session of 1935-36. Students to the number of 290 have been enrolled. These have consisted of:—

Graduate Students, 14 (of whom 10 were proceeding to the Diploma in Public Health).

Undergraduates:

Faculty of Medicine, fifth year	123
Faculty of Household Science, third and fourth years	27
Faculty of Arts, third year	35
Department of University Extension	42
School of Nursing	49

Students in the diploma in public health course, as has been the case in previous years, have come from many parts of Canada and from other countries. This year the Provinces of Manitoba (2), British Columbia (2), New Brunswick, Quebec (3), were represented and in addition there were one each from India and Jamaica. Of these medical graduates preparing themselves for whole-time work in the public health field, four held Rockefeller Foundation fellowships and five of them Connaught Laboratories fellowships. The student from India, a graduate of this University in medicine, was on leave of absence from the Indian Medical Service of which he is a member.

It is of interest to recall that a D.P.H. curriculum was first approved by the Senate in 1904. For many years no student applied for admission to the course. During the session of 1911-12, a medical graduate engaged in public health work petitioned to be permitted to proceed to the examinations leading to the diploma. Favourable consideration of the application and success in the subsequent examinations led to the first diploma being granted by this University in 1912. Since

that year a total of 146 others have enrolled. Since the opening of the School of Hygiene building in 1927, no less than 97 students have obtained the diploma in public health. The great majority are engaged in public health work in Canada. More than 30 of them are so occupied in the Province of Quebec alone. They are medical graduates of the Universities of Laval and Montreal who have undertaken their graduate work here.

This year a second appointment to the Hastings Memorial Fellowship was made. A. E. Allin, B.A., M.D. of this University, was the recipient. Under the immediate direction of Professor D. T. Fraser in the department of hygiene and preventive medicine, Dr. Allin has well maintained the prestige of this fellowship established by his predecessor, Dr. A. H. Sellers, in the session 1932-33. Dr. Allin has explored several problems. The early fundamental work of Ehrlich on ricin has been repeated and extended. A study of the toxic action of that antigen and immunity thereto has been followed by the elaboration of new methods of assay for both toxin and antitoxin.

A study of sensitisation to diphtheria protein during an attack of diphtheria has also been investigated. That sensitisation does occur has been established by Dr. Allin and he has found, too, that sensitivity is the rule among diphtheria carriers. These results are interesting and important. An investigation of the response of macacus rhesus monkeys to diphtheria antigens has also been completed. Because of the limited number of animals studied this is to be regarded as preliminary to more extended work and leads already obtained render such desirable. Twenty-one monkeys in the group tested were found to have no natural antitoxin. Success was not obtained in infecting the monkey by the respiratory route. Further studies were made of the effect of cortin in guinea-pigs injected with diphtheria toxin and a method of determining blood volume in guinea-pigs by ascertaining the amount of diphtheria antitoxin in the circulation after passive immunisation by the intravenous injection of homologous antitoxin was elaborated.

The very great importance of access to well-organised, well-administered and adequately supported official and voluntary health and social agencies to both staff and students in a School of Hygiene has repeatedly been emphasised in previous reports. No School could be more fortunately or happily situated in these respects than is this School. Most intimate, friendly and mutually helpful relations exist between the Department of Health, Ontario, the Department of Public Health of the City of Toronto, and the School of Hygiene, University of Toronto. Similarly many other official and voluntary organisations in the public health field, social agencies, business organisations and private individuals have all been of the greatest possible assistance by permitting graduates and undergraduates to make observational visits. The staffs of such organisations have often contributed substantially to the success of visits by personal interest, and otherwise. This field work is now supervised by Dr. P. A. T. Sneath, to whom very great credit is due for the excellence of the arrangements maintained. Warm thanks and appreciation are here extended to all those who have made possible a clearer appreciation of the scope and nature of public health and preventive medicine in giving permission to staff and students of this School to enjoy quite unique facilities and opportunities of observation, study and investigation.

Few changes in personnel have taken place during the current session. Dr. Frieda H. Fraser has been promoted to an assistant professorship in hygiene and preventive medicine and Dr. James Craigie also has been made an assistant professor of epidemiology.

Details of investigations which have been carried on by members of the departments of the School who are also members of Connaught Laboratories staff or in receipt of research grants therefrom are to be found in the report of the Director of Connaught Laboratories.

It is a pleasure to record the fact that the School of Hygiene and Connaught

Laboratories have had the joint opportunity and privilege of entertaining visitors from all parts of the Dominion of Canada and from many other countries. Guests from the United States of America, the British Isles, Argentia, Australia, Brazil, China, Esthonia, France, Germany, Holland, India, Japan, Mexico, Newfoundland, Norway, Peru and Switzerland were welcomed to the School of Hygiene during this session.

(11) REPORT OF THE LIBRARIAN

(W. S. Wallace, Esq., M.A.)

I beg to submit the following report of the work of the University Library for the year ending June 30, 1936:

The number of volumes added to the Library during the year has been 11,425, and the number of pamphlets, 8,676, making the total number of accessioned volumes in the Library 328,129, and the total number of pamphlets 127,275—or a grand total of 455,404 items.

The following are the statistics of the use of the Library by undergraduates, in comparison with previous years:

	1921-22	1926-27	1934-35	1935-36
Reading-room books.....	41,928	106,485	186,605	193,522
Overnight books.....	18,998	39,779	107,559	111,929
Week books.....	4,782	13,104	23,377	25,128
Totals.....	65,718	159,278	317,541	330,579

This represents an increase during the year of over 13,000 books handled, or an increase of approximately four per cent. At the professors' and graduates' register there has been a slight decrease, caused no doubt by the smaller registration in the School of Graduate Studies.

I append herewith a statement showing the total circulation in the library during recent years:

Total circulation	1926-27	1930-31	1934-35	1935-36
To undergraduates.....	159,278	231,759	317,541	330,579
To professors and graduates..	20,000	37,388	40,843	39,425
Totals.....	179,278	269,147	358,384	370,004

These figures are exclusive of books taken for consultation from the reference shelves, of which between twenty-two and twenty-three thousand have been replaced on the shelves by the library assistants during the year. They are, however, inclusive of interlibrary loans, of which 666 have been handled during the year, 461 being books lent by the University Library, and 205 books borrowed. An interesting feature of the interlibrary loan service is the increase in the number of photostats and bibliofilms received from other libraries in place of interlibrary loans of books.

I append also a statement showing the circulation in the medical, political science, University College, and law reading rooms, in comparison with last year:

		1934-35	1935-36
Medical reading-room:	reading-room books.....	10,761	11,195
	over-night books.....	11,386	12,219
	week-books.....	3,606	3,622
		25,753	27,036

Political Science:	reading-room books	12,567	11,208
	over-night books	6,890	6,338
		19,457	17,546
University College:	reading-room books	33,325	30,746
	over-night books	17,943	16,466
		51,268	47,212
Law reading-room:	reading-room books	8,822	15,585
	over-night books	2,870	4,368
	week books	251	524
		11,943	20,477

The ravages caused by the steadily mounting circulation continues to be a problem. During the past year the binding and mending department has prepared for binding 2,855 volumes, has mended 2,524 volumes, and has put into pamphlet binders or boards 1,075 volumes.

I am glad to be able to report that the situation caused by the exorbitant cost of German scientific periodicals, combined with the unfavourable state of exchange between the Canadian dollar and the German mark, has been greatly improved by the action of the German publishers in making an all-round 25 p.c. reduction in their prices. This action was of course due largely to the pressure brought to bear on the German publishers by the American Library Association. As a result of it, the cost of periodicals in medicine, biology, chemistry, and other scientific subjects, has now abated, so that the cost of these periodicals no longer needs the total appropriation, and some funds are available for the purchase of monographs.

Unfortunately, no sooner has the library obtained relief from one quarter, than an equally serious drain on its resources has been imposed on it from another quarter. A year ago an Act was passed by the Canadian government removing from university purchases the exemption hitherto enjoyed from sales and excise taxes. This has meant that during the past year, in contravention of the long-established principle that books purchased for the University Library should be free from taxes, we have been compelled to pay a so-called excise tax of three per cent on books imported into Canada, as well as a sales tax of eight per cent on the binding done for the University Library by the University Press. I estimate that these taxes have diminished the purchasing power of the University Library during the past year by at least $1,500. A particularly objectionable feature of the new regulations is that they do not even permit the introduction into Canada from the United States of interlibrary loans without the payment of the so-called excise tax. If, for example, the University of Toronto Library borrows from an American University Library a rare book valued for purposes of insurance at $100, we are expected to pay a tax of $3.00 on the book before it can be released from the customs, as well as having to pay carriage charges on the book both ways. If the Commissioner of Excise persists in his ruling that interlibrary loans are subject to excise tax, it will effectively put an end to all interlibrary loans from the United States—a serious state of affairs, when it is remembered that there are many scientific periodicals not to be found in any library in Canada. It is hoped, however, that joint action in regard to the matter will be taken by all the university and college librarians in Canada, and that relief may be obtained by a direct appeal to the Canadian government.

I wish again to bring to your attention the services rendered during the past year by my assistants in the University Library, under conditions which, with the continued increase in circulation, and the growing congestion in the stack-room, reading-rooms, and work-rooms in the Library, become yearly more difficult. In this connection, I should like to note also the retirement this year of Miss Helen Fairbairn, who has been a most valued assistant in the University

Library for twenty-eight years, after having served for twelve years in the McGill University Library, and who has been for the past fifteen years head of the periodical department in the University of Toronto Library. Miss Fairbairn carries with her the affection and esteem of all the members of the library staff, and their best wishes for many years of well-earned leisure.

(12) REPORT ON RESEARCH

Anatomy, under direction of Professor J. C. B. Grant

The head of the department has been engaged in preparing the manuscript and diagrams of a book he has nearly completed.

Professor James Crawford Watt has continued research work along lines previously established: A. Continuation of the investigation of the processes involved in calcification and ossification. Some new technical procedures for demonstrating calcium have been devised. These give promise of much usefulness. B. The arrangement of the cranial venous sinuses related to the confluence of sinuses (torcular Herophili) have been studied in more than 120 cases. Variations of much interest have been observed and sketched. An analysis of this series is being prepared. C. With the assistance of Dr. A. N. McKillop, further and more extensive investigation of the arteries in the posterior cranial fossa in man has been carried on. It is expected that a paper will be prepared on this subject during the summer.

Professor W. H. Piersol has completed the reconstruction and study of a human embryo of two somites. The model is so contrived as to show the more important aspects of its structure.

Professor A. W. Ham and M. B. Lewis found that disease of the coronary, intestinal, and renal arteries develops as a sequela to a calcium shower induced by one enormous dose of activated ergosterol. They showed also that the same primary lesion as that induced by an overdose of vitamin D could be produced by two weeks' excessive feeding of calcium, phosphorus and acid.

Dr. Purdy (Fac. of Dentistry) and Dr. Ham are investigating the effect of various disturbances of the calcium and phosphorus metabolism on teeth in order to determine whether mineral can be withdrawn from the latter. (This work is being carried on under a grant from the Canadian Dental Research Association.)

Mr. H. C. Elliott and Dr. Ham are investigating the effect, particularly on the joints and heart, of a long continued vitamin C. deficiency in guinea pigs. Dr. Schillington (Faculty of Dentistry) is studying the effect of Vitamin C. deficiency on the teeth of these animals. (This work is being carried on under a Banting grant.)

Certain B. & M. students, who elected histology as their fourth year option subject, performed research under Dr. Ham's direction: thus Miss C. Horner investigated the histological changes in the uterus and vagina of ovarectomized rats at various time periods following the administration of a single massive dose of oestrin: Mr. H. Fine investigated the problem of disuse atrophy of bone by means of alizarin staining: Mr. Powell investigated changes caused by scurvy in the blood of guinea pigs, particularly with regard to the Arneth count: Mr. H. Copp and Mr. W. Perry planned and constructed much of the apparatus for a small tissue culture laboratory and succeeded in cultivating chick tissue. Mr. B. S. Leibel investigated afresh the architecture of the heart muscle and made advances in our knowledge of this structure.

Professor Ruggles George has investigated the planimetry of the bodies of the vertebrae, and has made numerous other observations on the vertebrae and on the costo-vertebral articulations. This investigation will be completed during the summer.

Dr. M. H. Book is continuing his studies of the respiratory portion of the lung. His investigation of this development of the alveoli in the human embryo throws some light on the architecture of these structures in the adult lung, and tends to disprove the time-honoured concept of a continuous epithelial lining for the pulmonary alveoli.

Professor M. A. H. Siddiqi, M.S., F.R.C.S., England, professor of anatomy at King George V. Medical College, Lucknow, has worked in the department as a Vincent Massey Fellow. His studies on the development of the genito-urinary canal have thrown new light on our knowledge of the process. The results of his work are embodied in his M.A. thesis.

Mr. H. E. LeMasurier and Dr. B. L. Guyatt have made many technical improvements in detail related to museum work, such as: an improved coloured injection mass with glue as a basis; a method of strengthening osteological material; improvements in design of display tables.

Astronomy, under direction of Professor R. K. Young

During the session 1935-36 two graduate students were in attendance in the department of astronomy and completed the requirements for the degree of Master of Arts. Miss F. S. Patterson investigated the stellar wave-lengths in spectrographs of small dispersion and determined a number of lines suitable for radial velocity work in the region of the spectrum λ4800-5700. Mr. W. H. Stilwell made a determination of the spectroscopic orbit of the binary star, H.D. 34762.

At the David Dunlap Observatory the various members of the staff have co-operated in the general programme of observation. The telescope has been in active operation since the end of June 1935 and since that time has been used on every clear night from sunset to sunrise. From the date of the opening until May 27, 1936, we have had a total of 978 working hours.

Spectrographic Work

The one-prism spectrograph has been used to measure the radial velocity of the fainter stars in and near the Kapteyn areas. There have been secured 753 spectra of 430 stars ranging in magnitude down to 8.0. To date 260 of the spectra have been measured and the results tabulated prior to publication. In addition to the regular programme of radial velocities, the orbits of binary stars have been under investigation. Dr. Millman has completed the orbit of the eclipsing binary TX Leonis and Mr. Stilwell has obtained a preliminary orbit for the star H.D. 34762.

Newtonian Focus

Dr. Helen Sawyer Hogg, as research associate, has been engaged on a programme of variable star work in the globular clusters. Ninety direct photographs have been secured. These photographs have yielded the periods of 33 variable stars in the cluster N.G.C. 6934 and 3 in the cluster N.G.C. 6402. Thirty new variable stars have been discovered and nearly 12,000 estimates of magnitude made. The clusters N.G.C. 6254, 6760, 6779 and M 13 are under investigation.

Meteor Research

Dr. P. M. Millman has continued a programme of visual and photographic observation begun in 1933 before the completion of the telescope. To date a total of 12,700 observations have been made at the observatory and co-operating stations. Photographic programmes have resulted in six meteor spectra during a total exposure time of 143 hours and eight meteor trails in an exposure time of 46 hours with direct cameras.

Intrumental Work

A large part of the time of the director has been used in getting the telescope and equipment of the observatory prepared for observation and in designing and constructing new apparatus. A Hartmann microphotometer and a spectrum sensitometer have been constructed in the observatory workshops. The installation of the 19-inch telescope is well under way and the instrument will be in active operation by July.

Biochemistry, under direction of Professor H. Wasteneys

Directed by Professor Wasteneys:

Mr. Bruce F. Crocker and Dr. Jacob Markowitz, acting on a suggestion from Dr. B. P. Babkin have successfully elaborated a new method for completely canulating the intestine at any desired level. By this method, the entire meal fed to an animal may be collected and analysed. It is believed that by this means a more accurate picture of normal digestion may be obtained than by the methods used hitherto. Mr. Crocker in collaboration with Dr. Marion Lawson has used this method to study the digestion of its protein component when the food has reached the end of the duodenum. There are a number of points of interest in the results obtained to date. The time for the passage of a given meal is remarkably constant from one experiment to another on the same dog, and also from one dog to another. This time, however, varies greatly for meals of different kinds of food. In this connection, it has been found that fat definitely retards the passage of the food with the result that the protein is more completely broken down when fat is present in the meal. The pH of the intestinal contents was found to be always acid and to vary within the limits of 4.7 to 5.7.

Mr. A. W. A. Brown, during the summer of 1935 and the winter and spring of 1936, has been engaged in a study of the gross metabolism of insects by the method of analysis of the excreta. He has found in the case of the flesh-fly larvae that the main end-product of nitrogenous metabolism is ammonia, although uric acid is also excreted in small amounts. He has succeeded in extracting the deaminating enzyme of these larvae which he has shown to be an intra-cellular enzyme, the substrate of which is not amino acids but is composed of the higher breakdown products of proteins. After studying methods of rearing the grasshopper *Melanoplus bivittatus* he investigated their nitrogenous excretions among which uric acid predominates but urea is also present as well as amino compounds. One-fifth of the excreta was found to be composed of a non-nitrogenous (peritrophic) membrane.

Dr. V. P. Ignatieff has commenced an investigation of the fat metabolism of the Canada Wonder bean, but the considerable technical difficulties which he has encountered have, so far, prevented him from reaching any definite conclusions. In continuation of his previous investigation into the role of phosphorus in plant metabolism he has studied the relative distribution of phosphorus and phosphatase activity in the floral parts of nicotiana affinis, petunia, salpiglossis and gladiolus. He finds that the sex organs as a whole and in the gladiolus, the anthers especially, have a higher phosphatase activity than other floral parts. He finds also that in gladiolus the highest concentration of phosphorus occurs in the sex organs and particularly in the anthers.

Directed by Professor G. F. Marrian:

Dr. D. Beall during last summer vacation continued his research on the methods of isolation of the oestrogenic hormones from pregnant mare's urine.

Dr. S. Cohen has continued his work on the nature of combined oestrogens in human pregnancy urine. He was successful in isolating in a chemically pure condition the combined form of oestriol and in identifying it as an oestriol monoglucuronide. More recently he has improved and simplified the method

of isolating this compound and he is accumulating large quantities of it for a more detailed chemical examination than was previously possible.

Mr. A. D. Odell during the first part of the session carried out a research on the physiologically inactive polycyclic alcohols which occur in human and equine pregnancy urine. He has been able to show that pregnandiol occurs in human pregnancy urine in an acid-hydrolysable combined form. Since pregnandiol is a valuable source of the corpus luteum hormone, this work, which makes possible the isolation of the former substance in much greater yields than have hitherto been obtained, is of very great practical value. Mr. Odell is now making a detailed study of the physiological potency of oestriol glucuronide on various test animals.

Mr. B. Schachter has been making a quantitative study of the excretion of oestrogens at different stages of pregnancy in the mare. He has also been attempting to isolate and identify the combined form of oestrone which occurs in mare's urine. He has made considerable progress towards achieving the latter.

Mr. G. Butler is engaged in a study of the factors involved in the initiation of normal parturition with particular reference to the possible role of the acetyl choline contained in the placenta.

Miss E. Batho is engaged in attempts to synthesise the compound equol which occurs in horse's urine and whose constitution was determined last year in this department. She is also attempting to determine the structure of the polyterpene compound, ursolic acid, which is present in many vegetable tissues.

Directed by Professor A. M. Wynne:

Dr. L. Farber, aided by a grant from the Banting Research Foundation, has investigated several factors affecting the growth and proteolytic activity of pathogenic *Staphylococci.*

Mr. M. Freed has continued the study of the synthetic action of pancreatic lipase. Several factors affecting the rate of synthesis of glycerides were investigated; the experimental results were analysed in terms of their relation to theories of the mechanism of enzyme action.

Mr. L. Rabinowitch has continued the investigation of the hydrolytic action of pancreatic lipase. He has studied (*a*) the affinity of the enzyme for various substrates and (*b*) various problems concerned with the inhibitory action of representative chemical compounds on lipolytic activity.

Mr. W. H. Fishman has critically examined certain methods for the determination of two volatile fatty acids in dilute solution and has modified the methods for use in the analysis of fermentation mixtures.

Professor A. M. Wynne, in collaboration with Mr. J. E. Boyd, Mr. J. A. Jackson and Mr. H. A. Proctor, has studied (*a*) the activity of yeast phosphatase, (*b*) the proteolytic activity of egg-white, (*c*) acid production by *Clostridium saccharobutyricum*, (*d*) the lipase activity of soya bean, (*e*) the purification of yeast invertase.

Biology, under direction of Professor E. M. Walker

The following summary includes investigations in progress, published, or in course of publication, for the year 1935-1936:

Vertebrate Anatomy

By Professor W. H. T. Baillie—Eye muscles and movements of eyeball in mammals: continued studies on sensitivity and pigmentation in lower vertebrates.

Under the direction of Professor W. H. T. Baillie:

C. K. Gunn—Origin and nature of pigment in rodent strains.

Invertebrate Zoology (including entomology and parasitology)

By Professor Norma Ford—Life history and behaviour of the parasitic flesh-fly *Wohlfahrtia vigil:* determination of the number of instars of *Grylloblatta* and their diagnostic characters: rate of growth of *Grylloblatta* at different temperatures.

By Dr. F. P. Ide—Distribution of mayflies in the Ottawa River and in one of its tributaries: identification of mayflies from stomachs of Atlantic salmon and of mayflies collected by Dr. D. S. Rawson in an investigation of Okanagan Lake, B.C., for the Biological Board.

By Professor E. M. Walker—Thoracic skeleton and musculature of *Grylloblatta:* diagnostic characters of larval stages of *Wohlfahrtia vigil:* a new Macromia (Odonata) from British Columbia and its nymph: distribution of Ontario Odonata.

Under direction of Professor E. M. Walker:

C. E. Atwood—Effect of different foods and of starvation on longevity, size, reproductive capacity and sex ratio in certain insects of economic importance (Lepidoptera and Hymenoptera).

Miss J. A. Fraser—Ecological studies of caddis-flies and their larvae in streams in Algonquin Park, Ont.

Miss J. F. L. Hart—A comparative study of British Columbian Anomura (hermit crabs and related forms), based on both larval and adult structure.

Professor Wen-Chun Ho (West China Union University)—A comparative study of the thoracic musculature of orthopteroid insects.

Mrs. E. Kuitunen-Ekbaum—Life history of *Philometra americana*, a nematode parasite of the Starry Flounder (*Platichthys stellatus*): life history studies of the cestode *Triaenophorus crassus* and the acanthocephalan *Leptorhynchoides thecatus:* endoparasites of haddock.

Miss R. D. C. Martin—Life history and ecological studies of two stream-dwelling damsel-flies, *Agrion maculatum* and *A. sequabile.*

F. A. Urquhart—Comparative morphology of the digestive tracts of two Orthoptera, *Tridactylus apicalis* and *Nomotettix cristatus:* hibernation of *Tridactylus.*

Marine Biology

By Professor A. G. Huntsman—Factors determining return of the salmon, Salmo salar, from the sea (for the Biological Board).

Under the direction of Professor A. G. Huntsman:

W. H. Johnson—Food and feeding of the herring, *Clupea harengus:* daily migrations and behaviour of towards light of the copepods *Calanus*, *Pseudocalanus*, *Acartia*, *Eurytemora*, and *Tortanus* (also at Atlantic Biological Station).

H. M. Rogers—Hydrographic faunistic study of the estuary of the Saint John River, N.B.

J. A. Stevenson—Factors influencing growth and abundance in the scallop, *Placopecten grandis*, in the Bay of Fundy (also at Atlantic Biological Station).

A. L. Tester—Local populations of the herring, *Clupea pallasii*, in the waters of British Columbia, as shown by the structure and by the proportions of the various year-classes (also at Pacific Biological Station).

G. C. Whiteley, Jr.—Factors determining growth and abundance in the cod, *Gadus callarias*, and the existence of local populations of cod in the Newfoundland region (also at Newfoundland Fishery Research Laboratory).

Mr. H. C. White of the staff of the Biological Board of Canada was given accommodation in the laboratory for work on the Atlantic salmon, Salmo salar, in regard to bird-enemies, fish-enemies, age-determination, return to the home stream, and food of the young.

Vertebrate Embryology

By Professor A. F. Coventry—Continuation of collection of placentae and embryos of small mammals. The sectioned series of *Peromyscus* is approaching completion and material for a similar series of *Clethrionomys* is in preparation. A considerable quantity of *Microtus* material, as well as less complete collections of other genera is ready for sectioning.

Animal Ecology, Mammalogy and Ichthyology

By Professor A. F. Coventry—Continuation of studies of populations of small mammals in Ontario: breeding characteristics of certain Cricetidae in Ontario.

Under the direction of Professor A. F. Coventry:

G. F. M. Smith—Investigation of the starfish, *Asterias vulgaris*, as a factor in oyster culture in Prince Edward Island.

By Professor J. R. Dymond—Ecology of fishes of Cache Lake, Algonquin Park: ecological and geographical distribution of fishes in Algonquin Park: taxonomic studies of maskinonge, *Esox masquinongy*.

Under direction of Professor J. R. Dymond:

F. E. J. Fry—Taxonomic studies of Lake Nipissing ciscoes, *Leucichthys artedi*.

D. A. Maclulich—Periodic fluctuations in the numbers of varying hare (*Lepus americanus*).

W. R. Whittaker—Growth studies of the pilchard (*Sardina caeruleus*).

J. M. Speirs—Migration studies of birds at Toronto.

Genetics

By Professor J. W. MacArthur—Genetics and cytology of the tomato.

By Professor J. W. MacArthur in collaboration with L. Butler—Rigorous genetic and physiological analysis of a quantitive character (size in tomato fruits).

By Professor J. W. MacArthur in collaboration with Dr. A. N. Langford and Dr. D. L. Bailey, at Vineland, Ont.—Breeding and testing a new greenhouse tomato variety immune to brown mould.

By Professor J. W. MacArthur in collaboration with Professor Norma Ford—Studies of finger, palm and sole prints in families where multiple births have occurred: study of the inheritance of physical characters in multiple births in man.

Under the direction of Professor J. W. MacArthur:

Miss V. E. Englebert—Genetic, cytological and taxonomic studies of blue grass species (Poa spp.).

K. Gunn—Genetics, physiology and biochemistry of a new mutant character, hereditary haemolytic icterus, in the white rat.

Professor G. Raithby (at O.A. College)—Systems of mating in cattle breeds and their genetic effects.

Mrs. M. E. Richardson—Studies in the I.Q. of parents and siblings in social problem families.

A. Wilkes—Mutation breeding and sterility in parasitic wasps.

By Professor Norma Ford—Investigations of taste reactions in young children and in monozygotic twins.

Comparative Neurology

By Professor E. H. Craigie—A study of the cerebral cortex of the ostrich: comparative study of the lateral cortex in a representative series of the Sauropsida: study of the respiratory centre of the cat (in collaboration with Professor V. E. Henderson).

Under the direction of Professor E. H. Craigie:

Dr. Carl G. Smith—Investigation of pathological changes in the olfactory apparatus of the albino rat.

Miss H. M. Stevens—Relative vascularity in the hypophysis of the cat.

Limnology

Under the direction of Professor W. J. K. Harkness:

C. Carl—Changes in the flora and fauna of a lagoon in Stanley Park, Vancouver, accompanying a transition from brackish to fresh water conditions: distribution of plankton in lakes of British Columbia and the relation between the plankton and the productivity of the water.

D. Chitty—Ecology of a marginal swamp, including plant succession the relation of plants to the aquatic microfauna and macrofauna, and the relation of these to fish production. Mr. Chitty is continuing this study at the Bureau of Animal Population, Oxford, in conjunction with other work under Mr. Charles Elton.

K. H. Doan—Factors controlling production and growth of the small-mouthed black bass (*Micropterus dolomieu*) in Lake St. Clair and in Algonquin Park. (This study was conducted by the Ontario Fisheries Research Laboratory in cooperation with and by the support of the Ontario Department of Game and Fisheries).

F. E. J. Fry—Movements of cisco of Lake Nipissing, the factors controlling these movements and the relation between movements and feeding habits. Experimental methods were employed to analyse the effects upon the movements of fish produced by changes of temperature, oxygen and carbon dioxide, and the relation between temperature of water and feeding of fish.

R. R. Langford—Continuation of studies on the plankton of Lake Nipissing, including their horizontal, diurnal, vertical and seasonal distribution throughout the lake. Determination by experimental methods of the reaction of plankton to such factors as light, temperature, oxygen and carbon dioxide. The distribution of the plankton crustacea was correlated with the feeding of plankton-feeding fish.

W. E. Ricker—Continuation of studies on the plankton of Cultus Lake, B.C., with special emphasis on their seasonal vertical distribution and the relative efficiency of different methods of sampling plankton now in common use.

Experimental Biology

By Professor L. Irving—Experiments upon the control of respiration in the beaver initial to a study of the animal during the act of diving.

Under the direction of Professor L. Irving:

E. C. Black—Study of the capacity of blood for oxygen in various fishes and the condition of transport in the blood of oxygen and carbon dioxide. The physico-chemical study is being related to the known habits of the fish with the object of showing the blood characteristics which determine the seasonal movements of the fish.

K. C. Fisher—Extension of studies of the relation of oxygen and oxidation to the rhythmic activity of the heart: divising of various apparatus, including (*a*) a type of electrical resistance thermometer for measuring the changes in the rate of flow of blood in solid tissues (the device has been used for studying the blood flow in the muscles during asphyxia); and (*b*) an electron tube relay by means of which a current of several millionths of an ampere will break a circuit carrying 1000 watts. The relay has been applied in the laboratory to thermostatic controls, to a time signalling device, and to a recorder for the frequency of drops falling from a tube.

Miss Greey—Continuation of studies on the balance of electrolytes in embryonic development by determining the changes in phosphates in developing fish eggs.

Miss Robertson—Preparation of the enzyme carbonic anhydrase, which accelerates the hydration and dehydration of carbonic acid: development of apparatus and methods for a quantitative determination of the activity of the enzyme: distribution of anhydrase in the tissues of invertebrate and vertebrate animals and its relation to the formation of calcified deposits in the tissues.

Botany, under direction of Professor R. B. Thomson

Phanerogamic Botany and Genetics

Anatomy and Experimental Morphology

Baldwin, W. K. W.—The organisation of the young sporophyte of *Ophioglossum* and *Botrychium*.

Bannan, M. W.—Investigations of intra-specific variations of wood structure in conifers.

Haldenby, C. N.—The origin and distribution of horizontal resin canals in the conifers.

Hull, Kathleen L., & Thomson, R. B.—The anatomical organisation of *Lycopodium* and *Selaginella*.

Radforth, N. W.—The development of plant embryos in culture fluid.

Taylor, T. M. C.—The sporeling organisation and the cladorhize development of the adult plant in *Equisetum arvense* L.

Thomson, R. B.—Comparison of the vascularisation of the cone-scales in the Araucarian conifers.

Thomson, R. B., & Hull, Kathleen L.—The organisation of the sporeling of *Osmunda* and of the lower vascular plants.

Wright, J. Gertrude—The nature of the pit-closing membrane in the higher gymnosperms.

Taxonomy

Krotkov, P.—Plant Survey work in the Bruce Peninsula; revision of the herbarium material; special study of Ontario willows and golden rods.

Taylor, T. M. C.—(1) A critical study of the genus *Betula*.
(2) Plant Survey work in the Batchawana and Port Arthur areas, in co-operation with the National Museum of Canada. A report on the collection from the former area is ready for publication.

Genetics

Thomson, R. B. & Wright, J. Gertrude—A Study of abnormal types of *Linaria vulgaris* and their heredity.

Mycology, Forest Pathology and Cryptogamic Botany

(Under direction of Professor H. S. Jackson)

Biggs, Rosemary P.—A cultural study of Thelephoraceae. A cytological study of a new species of *Dipodascus*.

Cain, R. F.—A taxonomic study of Ontario Sordariaceae and related Sphaeriales.

Dearness, John—With the co-operation of the Department of Botany, Dr. John Dearness, of London, Ontario, is preparing an annotated list of the fungi known to occur in Ontario.

Groves, J. W.—Cultural studies of certain canker forming species of *Dermatea*, *Pezicula*, *Godronia* and related forms. (In part submitted for publication.)

Jackson, H. S.—(1) A study of the rusts of Panama and Costa Rica.
(2) The mycological flora of the Toronto region and of the Temagami Forest Reserve.
(3) Studies of Ontario Thelephoraceae.

Lehmann, A. J. V.—A study of the nuclear phenomena of the Germination of the teliospores of certain species of *Lepto-Puccinia*.

Macrae, Ruth—A study of phosphorescence in *Panus stipticus*.

Plant Ecology and Seed Studies

(Under direction of Professor H. B. Sifton)

Structural Ecology:

Baldwin, W. K. W.—A study of Leaf Fall in *Crataegus Oxycantha*.

Cormack, R. G. H.—A microchemical and experimental investigation of the development of root hairs. (Paper ready for publication.)

McPherson, D. C.—On the structure, form and development of air-spaces in roots.

Sifton, H. B.—On the development of the leaves of Labrador Tea.

Seed Studies:

Leggatt, C. W.—Investigation of dormancy in Lettuce seed. (Paper ready for publication.)
Investigation of certain mathematical aspects of seed analysis.

McGugan, Miss Jean E.—The seed-coats of the genus *Brassica*.
The occurrence of certain characteristic pigments in the cotyledons of *Brassica* species and varieties and their value in seed identification.
Identification of *Brassica* seedlings.

Sifton, H. B.—Investigation of the effect of alternating temperatures and light on seed germination.

Technique:

Hamly, D. H.—Microscopic illumination for biological work. (Paper about ready for publication.)

Plant Physiology

(Under direction of Professor G. H. Duff)

Brodie, Anne B.—The metabolism of nitrogen and its relation to respiratory metabolism. The drift with age of organic nitrogen in unstarved leaf cells has been established and related to the respiratory drift. The effects of starvation are now under examination.

Duff, G. H.—Sugar degradation and respiratory metabolism. A study of metabolic mechanics in the plant cell. The reserve sugar has been isolated from the first leaves of wheat in crystalline form and its characterisation is in progress.
The metabolic gradient of the attached wheat leaf, its relation to sugar concentration and its modification after isolation.

Losee, S. T. B.—Anaerobic metabolism in the wheat leaf.

Phillips, W. R.—The physiology of pears in gas storage. (In co-operation with the Department of Horticulture, Ontario Agricultural College.) A paper is in course of preparation for publication.

Tomalin, F. E. M.—The influence of age upon the sugar respiration relation. A study of metabolism in the juvenile state for comparison with that established for the state of maturity.

Walford, E. J.—The respiratory metabolism of the tomato fruit and its relation to storage at 12.5° C. (In co-operation with the Department of Horticulture, Ontario Agricultural College.) A paper is now being prepared for the press.

Plant Pathology

(Under direction of Professor D. L. Bailey and in co-operation with the Vineland Experiment Station)

Bailey, D. L.—Dead Arm Disease of Grape.
Diseases of Ornamentals.
(*a*) *Cytospora* disease of Koster's Blue Spruce.
(*b*) Suspected virus diseases of lilies and gladiolus.
Strawberry Root-rot.

Langford, A. N.—*Cladosporium* leaf mold of tomato.

Weaver, L. O.—Factors influencing the fungous flora of raspberry roots.

Cytology

(Under direction of Dr. L. C. Coleman)

The cytology of *Gasteria* and *Allium*.

Chemistry, under direction of Professor W. Lash Miller

Thirty-nine students were engaged in research during the past winter under the direction of professors of the department of chemistry. The degree of Master of Arts was conferred on thirteen of these viz:—Messrs. M. M. Bayne, H. R. Bernstein, A. G. Boyes, G. W. Graham, D. J. LeRoy, C. Marchant, R. N. Meals, J. J. Russell, A. J. Skey, R. S. Soanes, S. O. Thomson, F. J. Webb, and I. D. Wintrob; also on Mr. J. J. W. MacHattie who worked under Dr. A. E. R. Westman, in the laboratories of the Ontario Research Foundation.

The degree of Master of Science in Agriculture was conferred on Mr. S. G. Russell, who worked in the laboratories of the Ontario Agricultural College under the direction of Professor R. Harcourt.

The following were the subjects of research:—

G. C. Allen, M.A.—Overvoltage
M. M. Bayne, B.Sc., B.A.—Acid esters of naphthalic acid
Prof. F. E. Beamish—Analytical determination of the platinum metals
H. J. Bernstein, B.A.—The Raman effect in electrolytes
A. G. Boyes, B.A.—Phenyl ethers from ethylene chlorhydrin
R. C. Carlisle—The separation of intimately mixed solids
M. Cohen, M.A.—The adsorption of gases on solids
L. Cook—Effect of temperature and pressure on the position of spectral lines
L. H. Cragg, M.A.—The sour taste of acids
Miss E. V. Eastcott, Ph.D.—Purification of Bios IIB
Miss M. L. Elder, M.A.—Purification of Bios V
E. C. Forbes—Effects of platinum metals on the surface of the assay bead
Prof. A. R. Gordon—Computation of thermodynamic quantities from spectral data
G. W. Graham, B.A.—Density of methyl alcohol vapour
A. H. Heatley, M.A.—Potential distribution in carbon arcs
W. A. James—The diffusion of hydrochloric acid
A. A. Janis, M.A.—Vapour pressures of salt solutions
L. F. King, M.A.—Rates of reaction of esters with alcohols in alkaline media
D. J. LeRoy, B.A.—Transport numbers by the moving-boundary method
F. MacDonald—Preparation of 5, 5'dinitro 2, 2'bitolyl
C. Marchant, B.A.—Preliminary study of two new constituents of Bios

R. N. Melas, B.A.—Study of a method for separating certain amino-acids
J. C. Morgan, M.A.—Diffusion in copper sulphate solutions
J. R. Patton, M.A.—Base-exchange between certain artificial silicates
R. J. Romans, M.A.—Photochemical reactions
J. J. Russell, B.A.—Analytical determination of the platinum metals
Miss C. J. Sanderson, M.A.—Influence of amino-acids on the yeast-crop
S. Shankman—The Becquerel effect
E. M. Sheffield—Cyclisation of 3-acenaphthoyl benzoic acid
A. J. Skey, B.A.—Adiabatic calorimeter for specific heats of organic liquids
R. S. Soanes, B.A.—Characteristics of Langmuir probes in carbon arcs
G. A. Stewart—Specific reducing agents for the platinum metals
S. O. Thomson, B.A.—Solubility of carbon dioxide in aqueous alcohols
D. L. Turner—Intermediates for phenanthrene synthesis
C. Unruh, M.A.—Aromatic diacid chlorides with polyphenols
M. Wayman—Preparation of bios-constituents from tomato-juice
F. J. Webb, B.A.—Alkaline reduction of aromatic nitro compounds
T. W. Westlake—Separation of Fe and As in the presence of Co and Ni
W. F. Weston, M.A.—Substituted phthalic anhydrides with acenaphthene
F. E. W. Wetmore, M.A.—Potential of copper sulphate in acid solutions
I. D. Wintrob, M.A.—Santalyl esters of phenyl-acetic acid

Food Chemistry, under direction of Professor C. C. Benson

There have been several graduate students working in this department during the year, some of them doing original work, but others doing only a small amount of such work but obtaining special training in the chemistry of foods as preparation for laboratory work later on.

Two of the students working in this department and registered in the Graduate School have, this year, been granted the degree of Master of Arts—Miss Jean Blundell, for a study of physical training in relation to basal metabolism and respiration, and Miss Dorothy Pearson, for a study of proteins of certain seeds which are largely used in Indian diets.

Geology, under direction of Professor E. S. Moore

Professor W. A. Parks completed his study of Devonian Stromatoporoidea during the summer months.

Professor E. S. Moore—Investigation of the geology and ore deposits of the Ramore area and of Afton and Scholes Townships, northern Ontario, for the Ontario Department of Mines.

Dr. M. Fritz—Study of the micro-fossils of the Devonian from wells in southwestern Ontario.

Under the direction of the staff in geology

A. Holstein—The heavy minerals in the Silurian rocks of the Niagara Escarpment.

H. G. Way—The Silurian of Manitoulin Island.

Under direction of Professor E. S. Moore

J. E. Armstrong—Pyrometasomatic ore deposits.

O. F. Carter—Structural features of gold deposits in the Precambrian of Ontario.

H. C. Lane—Function of chlorine in the genesis of ore deposits.

W. W. Moorhouse—Types of igneous rocks genetically associated with gold deposits in Canada.

B. Russell—Genesis of ore deposits in Cameron Island area, Ontario.

Household Science, under direction of Professor A. L. Laird

During the session 1935-36 there were seven graduate students taking work in this department but only three of them were engaged in research.

Miss L. M. S. Davis has continued her study of the comparison of tensile strength, detergency, and whiteness retention of fabrics washed by domestic and commercial laundry methods, and has been granted the degree of Master of Arts. The problem was carried on with the co-operation of the Chemistry Division of the National Research Council, Ottawa, and the Toronto Launderers and Dry Cleaners.

Miss G. H. Donald is working on the calcium content of some Canadian foods, and Miss D. E. Mulholland is making a study of low cost special diets.

Applied Mathematics, under direction of Professor J. L. Synge

The following researches have been in progress during 1935-36:

B. A. Griffith, M.A.: Continuation of work on the problem of the flow of a viscous liquid past a circular cylinder by a combination of the methods of Stokes and Oseen.

A. F. Stevenson, Ph.D.: Generalisation of the Hartree-Fock equations for two-electron systems.

J. L. Synge, Sc.D.: Dynamical theory of electrical commutator machinery.
Completion of Whittaker's extension of Gauss's theorem to general relativity.
Analysis of the new relativity proposed by Page.

Medical Research, under direction of Professor F. G. Banting

Dr. D. A. Irwin and his group of workers have investigated the toxicity of various kinds of quartz; the effect of the dilution of quartz by carbon and microcline; the toxicity of various mine dusts in the unaltered state and when separated into gravity fractions. With Dr. B. C. Coles he has studied the siliceous materials found in the lungs and lymphatic glands of non-silicotic persons.

A quantitative estimation of quartz in dust by X-ray diffraction method has been made with the assistance of Mr. H. H. Binden.

Dr. J. T. Fallon has found that the granulomatous tissue produced by the injection of finely particulate quartz contains a silica-free lipid which on injection produces a nodular fibrosis.

Dr. Coles has prepared aqueous solutions of quartz which, when injected into the lung, produced an early tissue response similar to that given by finely particulate quartz. The injection of varying concentrations of such a solution has given further information about the toxic properties of soluble silica.

Dr. W. R. Franks has continued the study of the effect of silica dust and silica solutions on monocytes in tissue culture.

Dr. Franks and Mr. A. Duncan have attempted to develop methods of analysing silica dusts by suspending them in fluids of known refractive index and studying their light value by the photoelectric dust estimator.

With the assistance of Mr. H. J. Creech and Miss M. Shaw, Dr. Franks has continued the work on the synthesis of chemoantigen related to tumor.

Dr. Franks and Mr. L. D. Proctor, in co-operation with the department of psychiatry, have been investigating the relation of glyoxalase activity to some mental diseases.

Dr. C. C. Lucas has succeeded in isolating the disulphide of normal urine in a pure condition. The compound has been identified as l-cystine. Further work on the neutral sulphur compounds in normal urine is in progress.

Dr. Lucas and Miss M. Dolan have continued the study of leaching silica from silicates.

Mr. K. Watson has been unable to find organic compounds of silicon in biological materials.

Mr. E. L. Outhouse has succeeded in identifying the phosphoric ester from tumors obtained last year, as amino-ethyl phosphoric acid. A study of the characteristics of the pure compound has led to improved methods of isolation, by means of which it is hoped to establish the presence or absence of this compound in normal tissues.

Mr. L. B. Macpherson has been engaged in a study of the fractional hydrolysis of cephalin. There is at present some evidence that lecithin and cephalin may be precursors of the phosphoric esters found in tumor tissue.

Mr. F. H. Lawford has prepared several new esters of phosphoric acid to add to the homologous series of compounds which he synthesised last year.

Drs. G. E. Hall, G. H. Ettinger, F. G. Banting and Mr. G. W. Manning have continued the study of the effects of daily intravenous injections of acetylcholine in the dog. Miss J. Lang has investigated the effect of such injections on the cell-count, viscosity, CO_2 combining-power, sugar, N.P.N. and chlorides of the blood of these dogs.

Other problems being investigated by Dr. Hall and his group are:

Electrocardiographic changes by vagus-phrenic anastomoses.

The effect of daily injections of atropine and ephedrine on the blood-pressure of the dog.

The effect of continuous injection of acetylcholine in normal and atropinised and eserinised dogs.

Studies on the serum esterase.

The effects of long-continued stimulation of the vagus nerve of the dog.

Dr. F. G. Banting and Miss S. Gairns have continued the work on experimental tumor.

Medicine, under direction of Professor Duncan Graham

An increasing number of clinical problems are under investigation. It is very gratifying to observe the continued interest and activity in clinical investigation shown by former whole-time members of the staff who are now serving on a part-time basis.

Dr. Rykert and Dr. Hepburn have published a paper on the use of strophanthin in the treatment of auricular fibrillation.

Dr. Hyland has forwarded for publication a report of his results in the treatment of myasthenia gravis by glycine and ephedrine. Dr. Maltby has made a preliminary report of some observations on glycine metabolism in patients suffering from myasthenia gravis.

Through the kindness of Professor Best, a supply of protamine insulin from Professor Hagedorn was made available for the treatment of patients with diabetes mellitus. A preliminary report on the physiological and clinical aspects of protamine insulin by Dr. Kerr and Professor Best of the department of physiology and Dr. Campbell and Dr. Fletcher of the department of medicine has been made. Dr. Campbell, Dr. Fletcher and Dr. Kerr have published a report on the use of protamine insulin in the treatment of diabetes mellitus.

Dr. Campbell and Dr. Dauphinee have developed a method for the determination of iron in small amounts of blood and tissue which promises to yield valuable information in the study of the metabolism of iron. Dr. Campbell has modified Bennhold's Congo Red test for amyloid and developed a suitable clinical method for the quantitative estimation of amyloid.

Dr. Cleghorn is continuing his clinical and experimental studies on the adrenals. Last year reference was made to the work of Dr. Cleghorn and Dr. McHenry of the department of physiological hygiene on the preparation and assay of adrenal cortical extract. They have prepared a potent extract which has proved to be effective in the treatment of the crises occurring in

Addison's disease. This extract is now being made and distributed by Connaught Laboratories. Dr. Cleghorn, S. M. M. Cleghorn, M. G. Forster and G. A. McVicar have published a paper incorporating the results of a two-year investigation on the factors influencing the survival of rats after adrenalectomy. Dr. Cleghorn and Dr. McVicar have continued their investigation on the chemistry of the blood and urine in adrenal insufficiency.

Dr. Dauphinee and Mr. Wakefield have made a preliminary report on the serum phosphatase in hepatic jaundice.

Studies on liver disorders, anaemia, pigment metabolism, and the peripheral vascular system are being continued.

Mineralogy and Petrography, under direction of Dr. T. L. Walker

Dr. T. L. Walker has carried on during the year the following investigations:

The investigation of the insect fauna in the amber from Cedar Lake, Manitoba, which was discovered by Dr. Walker, has been continued. The description of the species which are of Cretaceous age has been done by Dr. F. M. Carpenter of Harvard University and will shortly appear in printed form.

The study of the moving bubbles in quartz from the Pre Cambrian Mine, Vernon, B.C., was continued and a moving picture has been prepared to show the nature of these inclusions and the rapid movement of some of them.

Professor Ellis Thomson has continued his studies on tellurides.

Mr. V. Ben Meen continued his studies on the character of the quartz in which the gold ores of Canada are found.

Mr. A. S. Dadson continued his work on the relationship between the potential of minerals and ore deposition, and his results are nearly ready for publication.

Mr. James M. Baker has been engaged in an investigation of the mineralisation of the ore minerals at the Taylor-Windfall Mine, B.C.

Obstetrics and Gynaecology, under direction of Professor W. A. Scott

Dr. Henderson has carried on an investigation of pregnancy and heart disease and is reading a paper on this subject at the Canadian Medical Association in June. These cases are now being looked after by a combined cardiac and obstetrical clinic in conjunction with the department of medicine with most satisfactory results.

The study of Dr. Goodwin's in connection with pelvic inclination in pregnancy and the relationship of anthropological factors to labor has been completed and is being put in final form for publication.

Dr. Mann demonstrated a new obstetrical forceps before the New York Obstetrical Society and the forceps are now in the hands of the manufacturer preparatory to being put on the market. During the year Dr. Mann completed a very interesting study of the mechanical factors involved in the dilatation of the cervix and presented it to the staff by means of a very ingenious mechanical demonstration.

Drs. Scott, Cosbie and Mann, in collaboration with the Institute of Radium Therapy, have been carrying on the radiological treatment of carcinoma of the genital tract and Dr. Cosbie presented to the staff a valuable study of the results up to date.

Dr. Low presented to the staff a study of the caesarian sections done during the last ten years and this is being put into form for publication.

The study of the physiological changes in the ureters during pregnancy which was carried out in collaboration with the department of urology and radiology has been completed and the results are being prepared for publication.

Dr. M. C. Watson, who has been working as a voluntary assistant in the

department, has, in collaboration with Dr. Marrian of the department of biochemistry, carried out an investigation on the clinical effect of various oestrogenic substances, the results of which have appeared in two articles. This work is still continuing.

The study of the sedimentation rate of the erythrocytes in cases of infection, cancer, early and late toxaemias of pregnancy, new born foetus and at various stages of the menstrual cycle have been carried on by Dr. Scott in collaboration with several members of the staff. This work is still being pursued.

Ophthalmology, under direction of Professor W. H. Lowry

Dr. MacDonald has overseen the section and study of one hundred and thirty-eight pathological specimens, a considerable increase over last year. Papers have been read in Ophthalmological congresses based upon the study of some of these pathological specimens. Quite a number of these specimens have been sent to the department from various centres throughout Ontario. No charge has been made for this work and it has come to the time when perhaps some of the expenses of the department should be borne by some compensation for this work done.

Dr. Morgan has been perfecting a technique for the transplantation of corneal tissue in rabbits and has some rather promising results already. So far we have not been able to do this on the human eye.

Dr. Johnston is doing some investigation in the fluid obtained in detached retina cases, with the object of adding to our knowledge of this serious disorder.

Pathological Chemistry, under direction of Dr. Hunter

Dr. D. L. Selby and Mr. J. B. Scott with the co-operation of the department of medicine, continued the investigation of kidney function in nephritic patients by means of xylose clearance. They also began experiments to find a simple method of measuring large amounts of iodine in blood and urine.

Dr. S. H. Jackson completed one stage of his work on the relationship of carbohydrate metabolism and staphylococcus infection. He has shown that the response to infection may be markedly modified by high carbohydrate diets.

Dr. T. F. Nicholson and Dr. R. W. I. Urquhart, with the assistance of Dr. D. W. G. Murray of the department of surgery, have devised a method whereby the changes in kidney function produced by experimental nephrosis may be separated from the effects of extraneous lesions and studied by themselves. Using this method Drs. Nicholson, Urquhart and Selby have made a number of interesting observations on kidney function in nephrosis.

Dr. Nicholson and Dr. R. M. Archibald, a voluntary worker in the department, have made further investigations on the use of Proteus vulgaris as a reagent for glucose and have found a means of quadrupling its activity without changing its specificity. They have also been able to delimit more strictly its field of usefulness in sugar analysis.

Dr. Hunter has devised an improved clinical method for the determination of urinary urea, and has perfected a manometric procedure for the enzymatic determination of arginine. The latter is being applied to two problems, (1) the specificity of the enzyme arginase and (2) the mechanism of the liberation of arginine in tryptic digestion.

Paediatrics, under direction of Professor Alan Brown

In conjunction with the Connaught Laboratories, an extensive survey has been made on children suffering from meningococcic meningitis from the standpoint of both treatment and prevention. The work on the development of an effective whooping cough vaccine and also the use of placental extracts in the

prevention of measles is progressing with satisfactory results. The development of different serums is being carried out.

Working in association with the department of pharmacology and the Banting and Best department of medical research, further studies have been made on the important subject of the prevention of poisoning in children. Recommendations have been made to prohibit the use of certain pharmaceutical products which have been found to be the cause of the death of many Canadian children each year.

Observations have been continued on children suffering from nephritis and it has been found that a number of these patients have an underlying anatomical defect. Some of these defects lend themselves to surgical correction. Further progress is being made in the study of various chest conditions in children from the standpoint of their treatment and prevention.

The joint effort with the department of psychology on an investigation of the effect of dietary deficiencies in early life on learning ability is being continued.

Studies have been made on the iron requirements of children and the availability of iron in foods. It has been found that only a portion of the total iron in food is available for the iron nutrition of children. This is a very important observation and our present conception of iron metabolism will probably have to be changed.

Interesting studies have been made on the effect of a low mineral intake on intestinal stasis. During the past year it has been found that a diet low in calcium and potassium results in marked stasis in the appendix. Further studies are being conducted which may give results of considerable practical value.

The nutritional studies are being continued and information is being obtained which indicates very definitely that diets which we have considered adequate are still not optimal and that simple changes may be made which will do much to further increase the health of the infant and child.

Pharmacology, under direction of Professor V. E. Henderson

I would like to call your attention to the two studies of Choline and certain of its analogues by Drs. Roepke and Welch. These papers give us a further insight into the mode of action of a very important group of compounds, important because one of them we now believe is constantly produced in the body and, indeed, forms the means by which nervous impulses set into activity many of the secretory mechanisms of the body.

The paper on the Respiratory Centre by myself and Dr. E. Horne Craigie of the department of biology is a report on the location of the respiratory centre in the medulla and its connections. This has been a very wearisome study but is of undoubted value both theoretically to pharmacologists and practically to surgeons of the central nervous system.

Dr. Lucas and myself have concluded a paper which is now in press on The Physical Properties of Mucus Secretion. This paper reveals the lubricating and protective characteristics of the mucus produced in the bronchi and by the salivary glands.

In conjunction with Mr. A. H. R. Smith, working under a grant from the Banting Research Foundation, certain derivatives of furan have been studied for their anaesthetic properties. Though they are of theoretical interest, they are not practical anaesthetics. This paper is also in press. We have also carried out a further study of some of the impurities of the anaesthetic propylene, which has led us to examine another group of gases with extraordinary physiological properties. This paper too is of theoretical importance, as it discloses a type of impurity which might occur in cyclopropane and which will have to be guarded against in its preparation. In conjunction with Mr. Smith and Dr. Roepke a method of recording pulse pressure electrically has been devised and gives promise

of enabling us to solve some of the problems of pulse pressure which are so important in clinical medicine.

Dr. Roepke has undertaken a study of the reactions occurring between acetylcholine and the esterase which breaks it up in the body. This study has revealed some very interesting data whose exact interpretation at the moment is not clear, but will undoubtedly throw important light on certain of the physiological mechanisms of the body. A preliminary report of this work was given before the American Pharmacological Society in March and a paper is being prepared dealing with the first phase of this work.

Physics, under direction of Professor E. F. Burton

A.

Low Temperature Problems:

In addition to the regular members of the staff the following have participated in this work: A. D. Misener, National Research Council Scholar, who carried out an investigation on the influence of magnetic fields on the superconductivity of metallic films, and on the specific heats of various substances at the temperature of liquid helium; K. E. Mann, B.Sc., B.Ed. (Sask.), who has carried out research on the construction, calibration, and use of a new form of superconducting galvanometer; A. H. Woodcock, assistant demonstrator, has been working on the thermoelectric effect in superconductors; A. I. Cove, assistant demonstrator, who has been working on the index of refraction of liquid oxygen, hydrogen, and helium in two states He I and He II; E. Bromberg (Columbia University), who was working on the Brownian movement at very low temperatures, and on the possibility of producing a permanent polarisation in quartz at the temperature of liquid helium; S. M. Dockerty, M.A. (Dal.) has just completed a three year research on the specific heat of copper at low temperatures.

Professor H. Grayson Smith and Mr. J. O. Wilhelm, who have been of great assistance in all the low temperature problems, have carried out a special research on the distribution of magnetic field about superconductors. The results of this work will be reported at the Seventh Congress on Refrigeration, in Holland, in June.

B.

Spectroscopy:

The work in this division has been carried out by A. B. McLay, M. F. Crawford, R. Richmond, S. M. Bateson, M. W. Johns, and C. A. Herald. They have been continuing the work on the hyperfine structure of the spectral lines of various elements. Papers containing the results of the investigations will be published shortly as follows: (1) Hyperfine Structure in Tl III (Thallium); (2) Nuclear magnetic moment of Bismuth; (3) Term analysis of Mercury III and IV.

Chemical Analysis by the Spectroscope.

Mr. Lorne Newman and Dr. E. Cohen have been continuing the work initiated last year on the specific determination of the absorption of ions by colloidal particles.

Miscellaneous spectroscopic work has been carried out as follows: By H. L. Welsh, M.A., on sensitised fluorescence set up in the vapours of other alkali metals by the Sodium D lines; L. B. Leppard, M.A., has concluded his work on the absorption of light by liquid ammonia solutions of the alkali metals; Dr. J. M. Anderson, of the staff of Scarboro Collegiate Institute, has been carrying out, very systematically, in his spare time, a very important experiment on the persistence of the metastable state of atoms.

C.

Electrons and X-Rays:

With the cooperation of Dr. W. H. Kohl, special lecturer in the department, C. E. Hall, B.Sc. (Alberta), holder of the Alumni Federation Fellowship, has been working in the new field of electron optics, and has completed, almost entirely by his own efforts, an electron microscope, of the electrostatic type. This work is so promising that the National Research Council has given the department an assisted research grant for the continuation of this work during the session 1936-37.

Analysis of Mine Dust by X-Rays.

With the support of the Banting Institute, H. H. Bindon, M.A., has been carrying out the X-ray analysis of mine dust by a method developed by Professor G. L. Clark, of the University of Illinois. The necessity of this work was first pointed out to Professor Clark by Professor T. L. Walker of the mineralogy department.

W. F. Oliver, M.A., demonstrator at McMaster University, has been continuing his work on the X-ray spectra of crystalline deposits of various materials.

A. R. Clark, M.Sc. (Sask.), has been continuing the work started by Dr. H. F. Batho, on the diffusion of ions in rare gases.

D.

Miscellaneous:

G. F. Clark, M.Sc. (Sask.), and G. F. C. Tait, M.Sc. (Alberta), have been continuing the work on the diffusion of gases through solids; in particular they have been testing the diffusion of light hydrogen and heavy hydrogen through copper.

L. G. Turnbull, M.A. (Dal.), has held one of the Graduate School fellowships during the past year. He has done a very remarkable piece of work on the dielectric constant of hydrated and dehydrated salts at high frequencies. This work will prove to be of very great importance in the consideration of the crystal structure of these salts.

With the assistance of Mr. Arnold Pitt, of the staff, D. W. R. McKinley has been developing an apparatus for a new determination for the velocity of light, using the properties of oscillating quartz crystals. This investigation also is a promising one, and the National Research Council has given the department an assisted research grant to continue this work during the session 1936-37.

Under the direction of Professor John Satterly (with Mr. J. R. Levitt).

A continuance of the work on the structure of jets showing how ripples on vertical jets may be utilised to measure values of the surface tension and how they are related to the stream line motion in the liquid. Admirable photographs have been taken of ripples on water and mercury jets and the measurements linked up to hydrodynamic theory.

An experimental study of the so-called parabolic jets of liquids have been undertaken in order to see how nearly such jets conform to parabolic arcs. Contrary to common ideas the jets are not parabolas, but the range on the down side is greater than the range on the upside. This was foretold in some recent work by Levi-Civita but even here the mathematician does not seem to have got all the truth. The discrepancies have been carefully measured.

Under the direction of Professor L. Gilchrist.

During the summer of 1935 the following geophysical studies were made in the Sudbury Basin district, with the assistance of F. J. P. Consitt, F. A. O. Banks, J. E. Reid and H. Strangways.

(*a*) Location of a body of pyrrhotite in Falconbridge township by magnetometric measurements on the surface of the ground.

(*b*) Correlation of surface magnetometric measurements and self potential measurements with the probable existence of an extensive deeply placed pyrrhotite ore body in McLennan township.

(*c*) Preliminary study of the effect of geological structure on the transmission of radio waves.

Professor H. A. McTaggart has been studying the conditions under which monomolecular films of Barium Stearate, spread on a water surface, may be transferred from the water to glass surfaces. He has succeeded in producing some very remarkable layers of films, which were exhibited at the meeting of the Royal Society in Ottawa, May, 1936.

Just previous to coming to Toronto, Dr. B. Haurwitz had shewn that "the vertical wind distribution in the lowest layers of the atmosphere is greatly modified if the isobars and streamlines of the air are curved as in cyclones and anticyclones." He has continued his work by investigating the influence of eddy viscosity in curved air currents. In connection with a study of the origin of extratropical cyclones as waves on the polar front (according to V. Bjerknes) which is in progress, results were obtained which have a bearing on atmospheric tides. Since internal surface waves cannot appreciably modify the free periods of the whole atmosphere it seems that the discrepancy between computed and observed tides can only be overcome by the assumption that the tidal oscillations are almost autobaratropic, i.e., a particle which was once in equilibrium with its surroundings will always remain so. A report was given at the meeting of the Royal Society of Canada in Ottawa, May, 1936.

Physiology, under direction of Professor C. H. Best

The teaching and research work of the department was conducted this year with the help of an enthusiastic group of junior members of the staff. Dr. C. Beecher Weld was appointed head of the department of physiology of Dalhousie University and was granted leave of absence for the months of April, May and June. He spent this time in London, England. The head of the department was appointed a guest lecturer at Yale University and gave a series of lectures on respiration and carbohydrate and fat metabolism.

Dr. Robert Kerr and the head of the department have been very much interested in the physiological effects of protamine insulin. Several members of the colony of diabetic dogs have been very successfully maintained on the new material. Dr. Kerr accepted invitations to discuss the results of this work at medical meetings in Atlantic City and in Kansas City.

Professor N. B. Taylor, with Dr. C. B. Weld and Dr. J. F. Sykes, has continued his researches on calcium metabolism as related to the action of the parathyroid hormone and irradiated ergosterol. The phenomenon of tolerance to parathormone and irradiated ergosterol, as exhibited by dogs receiving repeated doses of these agents, was investigated. A report of these experiments has been published. With the help of Dr. A. C. R. M'Gonigle, who devoted this year to research in the department, work upon intestinal obstruction was extended and a study made of the possible rôle played by dead muscular tissue in the causation of surgical shock. Dr. Sykes in a series of ultra-filtration experiments investigated the diffusible and non-diffusible fractions of the serum calcium in dogs and the effects upon them, respectively, of parathormone, irradiated ergosterol, parathyroidectomy and the calcium intake level. The results of this investigation formed the basis of Dr. Sykes' thesis for his Doctor of Philosophy degree which he obtained this year.

In collaboration with Miss J. P. Griffiths, Dr. E. T. Waters has conducted further work on the metabolism of fructose in mammals. The rapidity with which the liver converts this sugar to some other substance, presumably to glu-

cose, either directly or indirectly, has been shown by the very small amount of fructose present in the hepatic tissue of rats absorbing fructose from the intestine. They have been able to demonstrate for the first time that the liver is not the only organ of the body which can effect this conversion. Certainly when fructose is added to the perfusing fluid of a canine heart-lung preparation there is some utilisation of fructose, with a small but definite conversion to glucose. They are of the opinion that this conversion occurs in the lungs. Glucose-free blood has been prepared for use as perfusing fluid in these latter experiments. Using this blood, which has a number of obvious advantages, they have also investigated the utilisation by the heart and lungs of the substances, such as fatty acids, lactic acid, dihydroxyacetone and glyceraldehyde.

With Dr. A. H. W. Caulfeild and Dr. M. H. Brown, Dr. Waters has made further studies on ragweed pollen sensitisation. By the addition of 1 per cent alum to an aqueous extract of ragweed pollen it is now possible to induce a high degree of sensitisation to the pollen in practically all guinea-pigs receiving an intravenous injection of the material. Inability to sensitise successfully more than a small proportion of injected guinea-pigs has been in the past a serious obstacle to obtaining conclusive results in some of these experiments. It has been established that the carbohydrate fraction of ragweed pollen does not bring about anaphylactic shock in animals highly sensitised to ragweed pollen. Recently the very encouraging result that carbohydrate when injected a few minutes before a shocking dose of antigen blocks the otherwise fatal anaphylaxis, has been obtained.

It has been generally assumed, chiefly on the basis of oral administration of lactate, that synthesis of lactic acid to glycogen in the liver is a normal step in the "carbohydrate cycle". Evidence that lactic acid is removed by the liver is satisfactory but (except in the case of oral administration) increases in liver glycogen subsequently have not been consistently demonstrated. The factors influencing deposition have been studied by Dr. Rhoda Grant, and the state of the liver with regard to fatty acid concentration has been found to be of importance.

An attempt has been made by Dr. J. M. Hershey to confirm the findings of Asher and his colleagues, that certain extracts of thymus glands produce remarkable effects on the development of white rats. The experimental procedure so successful in the hands of Rowntree has been followed. The onset of warm weather will delay or prevent the completion of this work, but no significant new findings have thus far been secured.

Psychiatry, under direction of Professor C. B. Farrar

Investigations being carried on in the department included studies in The Pathogenesis of Suicide, The Origin and Significance of Ideas of Reference, The Socialisation Factors Involved in Foster Home Placement in the Treatment of Children with Conduct Disorders, The Relationship of Thyroid Conditions to Anxiety States, Metabolism Studies in Acute Febrile Excitement, The Etiology of Subdural Hematoma in Psychiatric Material, Neuropathology of States of Acute Excitement.

Psychology, under direction of Professor E. A. Bott

During the session 1935-6, fifty-three graduate students took instruction in psychology. Of these, twenty-seven were engaged upon special problems and the remainder were taking course work of graduate character; eleven were enrolled from other departments. One student completed the requirements for the Ph.D. degree in psychology, and six the requirements for the M.A. degree. The names of these candidates and the titles of their theses follow:

For the degree of Doctor of Philosophy:

Mrs. E. Palter—The Variability of Performance in Normal and Depressed Subjects.

For the degree of Master of Arts:

D. L. McEachern—Effect of dictation by meaningful groups of words on shorthand speed.

Mrs. D. Rabinowitch—Effects of success and failure on learning.

Miss M. L. Rean—Factors related to occupational preference of High School boys.

Miss M. D. Salter—Attitudes and the galvanic skin response.

W. V. Trott—Accuracy of arm movements in a horizontal working space.

G. H. Turner—An objective study of analogical and analytical reasoning.

Two important changes have been introduced this session in the plan of graduate instruction for students proceeding to higher degrees in psychology, the first concerning the advanced programme that qualifies students as candidates for the Ph.D. degree, the second concerning the programme for beginning graduates.

For several years a single preliminary examination on four papers had been used in psychology as a means for accepting students as candidates for the Ph.D. degree. This plan was found not to guarantee sufficient knowledge on all the essential branches of the subject and hence this plan has now been eliminated in lieu of a plan defined in two stages which respectively concern all the academic conditions and then the special thesis work. Students will be formally accepted by the department as candidates for the Doctor's degree only when all requirements for the academic stage have been certified.

The other change is on behalf of beginning graduate students who aim at the Master's degree in two years. Owing to our large enrolment of graduates from various courses and institutions, difficulty had been experienced in appraising their training and acquainting them at the outset with the possible lines of specialisation in our subject so that they might choose intelligently a branch upon which they would concentrate. The situation presented a problem in student guidance which required co-operative effort of all the staff for solution. As a pedagogical project the staff has therefore combined in organising a new compulsory course for beginning graduates, called introduction to research, which will bring all beginners into contact during the year with each of the major divisions of graduate work in psychology and each of the senior members of staff. Specialisation will then be deferred largely until the second year, when these students will have had a wider range of experience and opportunity for more intimate consultation than heretofore with all members of staff in the department.

During the year members of our staff have been engaged on special researches, individually and in groups. The previous plan of having joint appointments and research responsibilities between our staff and other staffs in the University and in public services outside the University has been continued and extended. This cooperation now obtains with the Ontario Department of Health (Mental Hospitals Branch), The Canadian National Committee for Mental Hygiene, Accident Prevention Associations in Ontario, The Toronto Juvenile Court Clinic, The Infants' Home and the Big Brother Association of Toronto, and the Department of Paediatrics (Animal Nutrition Laboratory) of the University. Mr. C. R. Myers through his connection with the Ontario Mental Hospitals has conducted an extensive study from case history materials of the causes of Mongolism. Professor W. Line working in association with the National Committee for Mental Hygiene and the Toronto Board of Education has developed a programme of study in the Primary School Grades designed to eliminate grade repetition and its psychological effects during the first three years of the Public School. Dr. K. S. Bernhardt, working with the research staff of the Paediatric Animal Laboratory, has supervised two studies on the effect of controlled deficient diets on the

learning ability of litters of young white rats. It is expected that these studies will furnish imporant leads in the clinical control of diets for children. Professor G. P. Cosgrave has continued the development of sensory and motor tests for use in differentiating accident prone and non-accident prone industrial employees. Dr. K. H. Rogers, whose work as director of the psychological clinic of the Infants' Home for the past two years has greatly contributed to the problems of foster child placement, was appointed in April, director of the work of the Big Brother Association in Toronto. This appointment, in charge of one of the leading agencies in the preventive field of child behaviour, furnishes an invaluable contact for psychological research and the training of graduate students. Dr. Rogers continues on our staff as a special lecturer. His former work at the Infants' Home has been taken over by a research assistant in psychology, Dr. Donald Snygg.

On the side of laboratory research, Professor Bott in collaboration with Mr. H. C. H. Miller has devised improved methods of studying the time relations of muscle action in complex voluntary movements; and with Mr. S. Glen, photographic registration of eye-movements in the visual observation of reversed perspective.

Professor S. N. F. Chant has engaged in four lines of investigation attitude measurement with special reference to emotional correlates and their significance for mental health; a study upon forms of reasoning; work upon methods of factorial analysis in psychological research; and the educational adjustment and mental health of individual students.

In the industrial and accident research laboratory established last year, Professor G. P. Cosgrave conducted an experimental study upon the effect of amount and direction of arm movement within the range of manual working space, with results that are applicable in the planning of repetitive industrial tasks. His development of a scale for measuring the attitudes of workers towards their jobs has continued.

In the comparative laboratory Dr. D. Snygg, working under Dr. Bernhardt, completed and published three studies upon fundamental characteristics of the learning process, which have attracted wide and favourable notice.

In social psychology, Professor J. D. Ketchum has continued the problem of analysis of life histories contributed autobiographically by young adults. Qualitative analysis has also been applied by Professor Line in evaluating certain thought forms characteristic of schizophrenic patients and those characteristic of persons possessing various levels of intelligence as measured by standard tests.

Research in the division of child psychology, conducted under the St. George's School for Child Study, will be separately reported by Professor W. E. Blatz, chairman of the University Committee on research in Child Study and Parent Education since 1934-5.

Surgery, under direction of Professor W. E. Gallie

During this year the research being conducted by Professor Best and Dr. Gordon Murray on the clinical uses of heparin has been brought to such a stage that it may now be used on patients. In order that it may be properly studied in the hospital, one of the assistant fellows, Dr. Wilkinson, has been released for six months from his regular clinical work in order that he may study those patients in whom heparin is used. It is hoped that the drug will prove of value in preventing thrombosis in blood-vessels which have been operated upon, and will lessen the incidence of pulmonary embolism after operations. This research will be continued by the departments of physiology and surgery.

The alliance of the departments of radiology and surgery continues to work satisfactorily and a most important clinical investigation is being conducted there by Drs. Richards and Wookey on oral cancer. Hundreds of cases are under constant observation and within a short time it will be possible for these

gentlemen to issue an authoritative statement as to the prognosis and treatment of this disease.

Similar studies are being conducted by Dr. Richards along with Dr. R. M. Janes and Dr. R. I. Harris, on cancer of the breast and sarcoma of bone, and progress is being made.

Clinical studies of the action of staphylococcus antitoxin and toxoid are being conducted at the Hospital for Sick Children by Dr. Keith and at the General Hospital by Dr. Welsh. As the number of patients is small, it will be a long time before any authoritative statement can be made, but the study will be continued until the action of these products is well understood.

The study of nerve regeneration being conducted by Dr. Sullivan of the department of oto-laryngology, Dr. Linell of the department of pathology and Dr. Keith of the department of surgery continues. It should be brought to completion within a year.

The department of surgery, through Dr. Gordon Murray, has been of assistance to the department of pathological chemistry in a most promising research on the function of the kidney, being conducted by Drs. Urquhart, Nicholson and Selby.

Therapeutics, under direction of Professor R. F. Farquharson

Research work in the department of therapeutics is closely linked with similar activities in the department of medicine. Dr. J. C. Sinclair was appointed research fellow in therapeutics. He has continued the study of the effects of the prolonged administration of large doses of irradiated ergosterol to patients suffering from parathyroid tetany, with especial attention to the prevention of cataract. He has made careful observations concerning the relative efficacy of different calcium salts in tetany and other conditions. In this work he has been assisted by Mr. H. W. Wakefield, research assistant in the department of medicine.

Dr. Sinclair and Mr. Wakefield have also continued the study of pigment metabolism in various conditions. They have made interesting observations on the effect of diet rich in meat protein on the excretion of urobilinogen and on the effect of ingestion of certain preparations of bile salts on pigment excretion.

Report on Research in the Faculty of Dentistry

The various departments of the Faculty have been carrying on as much research as possible in the limited time available for such purposes.

Dr. Harold K. Box, research professor in periodontology, has continued his experiments on tooth mobility in sheep as affected by certain insufflation procedures. He also has been engaged on the problem of edema of the gingival tissues. The results of these studies are to be published at an early date. Further investigations have been carried out on the red bone-marrow of human jaws, especially in relation to bone resorption and the findings have been recently published. Mr. A. F. Fenton, the research technician in this department, has been engaged in the study of mechanism concerned in the extrusion of fully-developed teeth, and certain new phases of the problem are being further pursued.

Professor F. M. Lott was awarded the M.Sc. (Dent.) degree for his study of the physical, chemical and biological factors involved in the use of glass as a denture base. The techniques used in this process are familiar to the dental profession and I feel that this form of denture service will be used in the practice of dentistry.

Miss D. F. J. Berry is proceeding with a study of phosphatase in saliva under the direction of Dr. Arthur Ham, department of anatomy.

Dean A. W. Lindsay, on furlough from West China Union University,

received the M.Sc. (Dent.) degree on his exhaustive study of dental education and practice with special reference to the present national, social and public dental health requirements of China.

Dr. H. A. Cominsky was awarded the B.Sc. (Dent.) degree for his histopathological study of the supporting tissues of the tooth in retarded healing following extraction, which was under the direction of Dr. H. K. Box and Dr. J. H. Johnson. His thesis has added some knowledge on this controversial condition and Dr. Cominsky hopes to proceed further with this study next year.

Dr. G. B. Shillington began a study of the relationship of Vitamin C deficiency to dental disease, with special reference to animal experimentation, under the direction of Dr. Arthur Ham, department of anatomy.

Dr. E. C. Purdy has been associated with Dr. Ham on research in the field of calcium metabolism. This investigation is to study the relationship of alteration in serum to the structure of teeth and bones as affected by parathormone and dietary deficiencies.

School of Engineering Research, Faculty of Applied Science and Engineering

The progress of the School of Engineering Research has been retarded during the past year by lack of funds for the employment of research assistants in sufficient number. New problems which several members of the staff were desirous of attacking could not be undertaken and some problems had to be left in an unfinished condition.

It is highly desirable that the funds for research in this Faculty be increased, so that this research movement, which has had such an encouraging beginning, may continue to exert its beneficial influence upon staff and students, and to increase both in quality and quantity its contribution to new processes, to engineering practice, and to the sciences underlying applied science and engineering.

Following is a brief description of researches which have been in progress during the past year.

Department of Civil Engineering

Under the direction of Professor C. R. Young

The investigation of lateral support of steel columns has been brought a little nearer solution. It is hoped to complete the paper this summer.

Under the direction of Professor T. R. Loudon

The following researches were commenced:

(1) An investigation of the compression properties of rubber at low temperature.
(2) An investigation of the effect of excessive stagger with small gap of biplane airfoil arrangement.
(3) A study of the effect of decalage of airfoil arrangement of number 2.

Department of Mining Engineering

Under the direction of Professor H. E. T. Haultain

(1) The study of apparatus for size analysis of finely ground ore has been continued.
(with W. E. Mickelthwaite)
(2) A study has been made of the viscosity of mill pulps, that is, of a mixture of water and solid particles in suspension.

Under the direction of Professor F. C. Dyer

The investigation of methods for the concentration from soil of the contained

weed seeds has been completed and a report sent to the Seeds Branch of the Dominion Department of Agriculture.

The research on the cleaning of seeds and the separation from weed seeds has been continued. A method for removing Dodder seed from clover seed has been devised.

Under the direction of Professor J. T. King

The investigation on methods of determining gold and silver in cyanide solutions has been continued. Methods in use in Ontario mines and elsewhere have been studied, in an effort to ascertain the causes of inaccuracy in results obtained by the use of some of them.

Department of Mechanical Engineering

Under the direction of Professor R. W. Angus

(1) The theoretical investigation of various phases of water hammer and the construction of graphical methods for the solution of such problems has been continued.

(with J. B. Bryce)

(2) An experimental investigation was commenced of water hammer in pipes, and a study of the value of the indicator as an instrument for recording such phenomena.

(3) A model of the dam at the Abitibi Canyon, and of the discharge gates was constructed and experiments were made on the water flow, and a number of coefficients were obtained with different quantities of flow. These experiments have proved of great interest to the engineers of the Hydro-Electric Power Commission.

(with G. R. Lord)

(4) A study was made, using a scale model, of the wind pressures on the roof of an airship hangar for various angles of wind.

Under the direction of Professor E. A. Allcut

(with F. G. Ewens)

Researches on the heat transmission of building materials have been continued on the 24-inch and 8-inch hot plates. Considerable discrepancies have been found between the published results and those obtained with thick specimens on the larger plate. These differences appear to be characteristic of packed fibrous materials and the research is being continued to ascertain the reasons for them.

Department of Applied Physics

Under the direction of Professor K. B. Jackson

A research on illumination for the inspection of specularly reflecting materials was commenced.

(with D. H. Hamly)

The investigation of photographic sensitometry and the characteristics of available photographic materials was continued.

(with D. H. Hamly and V. L. Henderson)

The photometry of microscope illumination and the design of a microscope lamp was in progress.

Department of Chemical Engineering

Under the direction of Professor M. C. Boswell

(with W. R. Cale and G. R. Davidson)

Iron and copper compounds of humic acids made from peat and cellulose

have been synthesised and the catalytic properties of the former compound studied.

(with L. J. Bohn and K. Patrick)

An improvement in the technique for the quantitative determination of methyl groups connected to nitrogen has been devised.

(with J. A. Rolls)

A new method for the quantitative estimation of inosite has been devised, which is much simpler to carry out than the existing method and possesses a higher degree of accuracy.

(with E. A. Dorfman)

The research on the catalytic reduction of sulphur dioxide by carbon monoxide and steam has been continued. This is a highly efficient process in the laboratory. The catalyst also accelerates the production of hydrogen from carbon monoxide and steam. The results of this investigation were presented at the Convention of the Canadian Chemical Association in June.

(with W. H. Rapson and G. T. Eaton)

A research was commenced on the synthesis of creatinine.

Under the direction of Professor E. G. R. Ardagh

(with W. H. Bowman)

Additional work on the chemistry of thiophene has been carried out.

A research is in progress on the preparation and chemistry of the phenolic derivatives of certain long chain acids of the aliphatic series. The results of this research were presented at the convention of the Canadian Chemical Association in June.

The investigation of the mechanism of the corrosion of iron in sodium chloride solutions was continued.

(with E. B. Storey)

Some progress has been made in a research dealing with the occurrence of selenium in the cereal grains of Ontario.

Under the direction of Professor R. R. McLaughlin

(with K. R. Hymmen)

An extension of the existing semi-micro method for estimating carbon and hydrogen in compounds containing nitrogen and halogens was continued.

Under the direction of Professor E. A. Smith

(with G. V. Jansen and F. B. Pickett)

The investigation of the absorptive properties of silk and their relation to the fibre structure has been continued during the past year. The diameter of intermicellar spaces in dry natural silk has been studied.

(with G. P. Beal and A. R. Thompson)

An analytical method for the determination of aluminium in clays using 8-hydroxyquinoline has been developed and a method of producing aluminium sulphate from Northern Ontario clays using sulphur trioxide has been investigated.

(with R. P. Bigger)

An investigation of the syntheses of side-chain halogenated cresols has been commenced.

Department of Electrical Engineering

Under the direction of Professor H. W. Price

Following the development and installation of an automatic frequency regulator, studies were made of numerous records and charts showing the history of events with this control. The purpose was to find how the regulating apparatus and generators under control could best be made to meet the very varied requirements of operating conditions.

St. George's School for Child Study, under direction of Dr. W. E. Blatz

This year the School has completed the ten year experimental period assigned to it for proving the value of the child development project suggested by the Rockefeller Foundation when the grant was made.

The continuous record study of child development, begun in 1926, is going forward steadily and, in addition to studies made by graduate students, an investigation into methods of home discipline is in progress. During the past year also a special study of the effects of certain food elements on mental activity has been carried on in co-operation with the Hospital for Sick Children.

The Nursery School Division has widened its scope by acting in several instances as an advisory centre to other organisations or persons planning play-schools and playgrounds for pre-school children. A film showing activities throughout the nursery school day has been made and is being used to familiarise the public with nursery school ideals.

The Parent Education Division continued its study groups and its leadership course, having this year 13 extramural groups led by student leaders in training, as against 4 of these in 1930-31, the second session of the course. In addition, 27 groups were conducted in Toronto by former staff members and students. Membership in the regular School groups, led by members of staff, was considerably increased in two instances, where groups were administered by the University of Toronto Extension Department. The average membership in these two courses was four times the average membership in the five other courses conducted during 1935-36 by the School.

Advice and suggestions have been given, by mail and through personal visits of staff members, to the University of Manitoba, which is inaugurating a programme of child study in co-operation with the local Child Study Association in Winnipeg.

Publications include three additions to the University Studies in Child Development and a book on the School Age Child is about to go to press.

M.A. Theses, 1935-36:

The effects of success and failure on learning—D. Rabinowitch.

Factors related to the occupational preferences of high school boys—M. Rean.

(13) PUBLICATIONS

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Bronze Lamp with a Phoenix on a Tortoise (28 B.C.). (Illustrated London News, April 4, 1936).

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DEPARTMENT OF UNIVERSITY EXTENSION AND PUBLICITY

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THE UNIVERSITY OF TORONTO QUARTERLY

(*Editor: A. S. P. Woodhouse*)

There has been during the past year a change in the editorial staff: Professor E. K. Brown has resumed a connection of high value to the QUARTERLY by becoming an associate editor. There has also been one innovation in policy.

In the opinion of the editor the Quarterly was equipped to fill a pressing need in the study of Canadian culture and letters by supplying an annual survey of the literature, creative and critical, produced by Canadians. In collaboration with the associate editors and Miss Alison Ewart, he drew up a scheme for such a survey, and sought the additional aid of Professor E. K. Broadus and Mr. W. S. Milne in carrying it out. The first survey, "Letters in Canada: 1935," appeared in the issue of April, 1936. It consisted of essays on the chief divisions of literature and literary scholarship, followed by a series of bibliographies which had been collected (with conspicuous success) by Miss Ewart. The welcome which the first survey has received, with the many testimonies to its value and interest, has fully justified the experiment. In that experiment the Quarterly has found a distinctive work which it can do, and a specific service which it can render to Canadian culture, in addition to its more general function as a journal for the humanities in Canada.

(14) REPORT OF THE DIRECTOR OF UNIVERSITY EXTENSION AND PUBLICITY

(*W. J. Dunlop, Esq., B.A., B.Paed.*)

Among the new ventures in University Extension undertaken during the session, 1935-36, were the one week's course in Municipal Administration, suggested by the President, the summer course for teachers of the deaf, attended by seventy-five men and women, chiefly from the United States, and the correspondence courses conducted for the Certified Public Accountants' Association and the Chartered Institute of Secretaries.

Since this Department was organised in July, 1920, there has not been one session in which there have not been new developments of some kind nor has there been a session in which there has not been an increase in the number of adult men and women taking continuous courses involving serious and sustained study.

University Extension is, of course, one phase of Adult Education and there are many other phases, as has been abundantly made manifest since the organisation of the Canadian Association for Adult Education, of which the director of this department has been president since its inception more than two years ago. But University Extension is, in many respects, the most important phase of Adult Education and it has been gratifying to see one or two universities in Western Canada developing their extension services on he same basis as that laid down here years ago. Properly carried on, university extension courses cover their own cost, apart probably from "overhead", except when instruction is provided for workingmen and women and for farmers, who cannot, under present conditions, be expected to pay the full cost of the service provided for them.

The newest development, one which gives promise of permanence and of expansion is the provision of courses in Public Administration. The University of Toronto has the honour of being first to enter this field, by co-operating for the past two years with the Canadian Seminar of Public Administration in Ottawa for which Dr. Alexander Brady has been the director and lecturer (and which was attended by 54 men) and by providing the week's course in Municipal Administration last February which was attended faithfully throughout (with seven lectures given each day) by 86 men and 4 women. Negotiations have been in progress for some months for a more pretentious course in this work in Ottawa and arrangements for a six weeks' summer course have been completed.

Another new venture has been a six week's summer course in Short Story Writing under the tuition of Dean Vernon McKenzie, a distinguished graduate of this University, who is now Dean of the School of Journalism of the University of Washington, Seattle. Years ago Dean McKenzie was the instructor of classes

in journalism for this department and now he returns for a few weeks to the scene of his first teaching. Fifty-three enthusiastic students, some of them university graduates, are enrolled in this new course.

Teachers' Classes, held in the evenings and on Saturdays, for those proceeding to the degree of Bachelor of Arts, have been attended by 603, chiefly, but not exclusively, teachers. In the Summer Session there were 378 in the Pass Course for Teachers, 42 in the courses for prospective specialists, 128 in the courses in Pedagogy, and 466 in the correspondence courses preparing for the Summer Session. Teachers studying Upper School subjects by correspondence numbered 129, and those taking commercial studies numbered 48, while there were 75 teachers of the deaf in the special summer course. In all, 1805 teachers were served and there are 64 others, not teachers, working with the teachers toward the degree. It can now safely be said that no university in the Dominion provides such a complete and such a diversified service for teachers as does the University of Toronto. And the teachers show their appreciation by taking advantage of the facilities, in numbers unequalled anywhere in Canada.

The courses in Occupational Therapy and in Physiotherapy are growing—indeed are now rather beyond the limit of the clinical facilities available—and are not only providing new careers for competent young women but are doing a great public service in training therapists who, under the direction of the physician and surgeon, are able to use modern methods of treatment for the relief of suffering and the healing of those physically and mentally ill. During the session now closing there have been 36 students in the former course and 34 in the latter.

Correspondence courses for business organisations are producing good results in the education and training of men and women engaged in commercial pursuits. These organisations have their own educational charters, fix their own courses of study, conduct their own examinations, and award their own diplomas. This department supplies the machinery for conducting the courses and gives advice and assistance when called upon. In the Canadian Credit Institute there were 72 students; in the Chartered Life Underwriters' Association, 125; and in the Certified Public Accountants' Association, 24. The work for the Chartered Institute of Secretaries was established but has not yet actually commenced.

In conversation with directors of university extension in the United States some weeks ago it was learned that the craze for "credit" is much more pronounced in that country than it is in Canada. These directors were amazed when told that between three and four thousand men and women are eager to study in classes arranged for the general public and for workingmen, by this University, when for this study no credit of any kind is given, when there are no entrance requirements, no examinations, no certificate, diploma, nor degree. It is encouraging to find so many people anxious to obtain education for education's sake. Our Evening Tutorial Classes are always popular, the enthusiasm remains keen, the attendance does not noticeably fall off during the session; of course, the tutors are carefully chosen and are of the best. It is interesting to grade the subjects according to their apparent popularity, as follows: English diction, 241; public speaking, 227; psychology, 208; journalism, 198; accounting, 189; current events, 185; English literature, 168; conversational French, 146; economics, 138; interior decorating, 125; parent education, 107; modern international relations, 93; German, 74; advertising, 62; modern history, 56; public administration, 54; astronomy, 53; English composition, 47; business organisation, 45; art, 44; oral interpretation of literature, 42; mercantile law, 40; lip reading, 36; investments, 34; theory and practice of purchasing, 34; metallurgy, 26; internal combustion, 26; secretarial practice, 26; traffic and transportation, 23.

The Workers' Educational Association continues to flourish. Under the title of Agricola Study Clubs its work has been extended to the young people on the farms of Ontario; bulletins on economics, written by members of the

university staff, have been mimeographed and distributed to members of discussion groups and to individuals who are really interested in study. 309 persons made use of this service for which a nominal fee is charged. Classes have been conducted as follows: *Brantford* (current events), 38; *Fergus* (economics), 40; *Gamebridge* (economics), 25; *Galt* (current events), 40; *Guelph* (economics), 28; *Hamilton* (economics, 28; history, 29; hygiene, 28; journalism, 56; psychology, 67; public speaking, 37); *Keene* (economics), 25; *Kingston* (economics), 23; *Kitchener* (economics), 30; *London* (finance, 32; physiology, 25); *Oshawa* (political science), 32; *Peterborough* (economics), 30; *Preston* (economics), 25; *St. Catharines* (current events), 39; *Stratford* (history), 32; *Toronto* (art, 36; composition, 68; current events, 149; economics, 273; English literature, 44; philosophy, 32; physiology, 49; political science, 27; psychology, 208; public speaking, 60; sociology, 40; science, 39); *Windsor* (philosophy), 31; *Woodstock* (current events), 35. Though it is not strictly part of this report, the fact should be mentioned that the Workers' Educational Association has obtained the co-operation of McGill University in financing a class in Montreal and another in Verdun, the former having 24 students and the latter, 41.

With the co-operation of the School of Nursing, two refresher courses were conducted, one for Hospital Staff Nurses, with an enrolment of 46, and another for Public Health Nurses, the enrolment being 64.

7,142 adults did continuous study of a substantial sort under this department during the session, an increase of 51 over last year's total. As nearly as can be estimated, more than 30,000 others took advantage of extension lectures and public lectures; this figure is a most conservative estimate.

The members of the staff who gave extension lectures this year are as follows: W. J. Dunlop, 52; Dr. K. H. Rogers, 24; Professor N. A. M. MacKenzie, 21; Dr. V. Lange, 15; Professor F. H. Underhill, 11; Professor G. W. Brown, 6; Mrs. J. Creighton, 5; Dr. J. O. Wilhelm, 5; Dr. P. M. Millman, 4; Professor H. J. Davis, 3; Dr. Norma Ford, 3; J. B. Bickersteth, 2; Arthur Lismer, 2; Professor T. F. McIlwraith, 2; C. W. Woodside, 2; Professor E. R. Arthur, 1; Professor F. C. Auld, 1; Dr. F. L. Barber, 1; Professor V. W. Bladen, 1; Dr. W. E. Blatz, 1; Dean G. S. Brett, 1; Dr. L. C. Coleman, 1; Mrs. J. F. Davidson, 1; Professor J. R. Dymond, 1; Sir Robert Falconer, 1; Professor E. Goggio, 1; Professor G. W. Knight, 1; Professor E. W. McInnis, 1; Dr. D. C. Masters, 1; Dr. S. A. B. Mercer, 1; Arnold Pitt, 1; Professor L. J. Rogers, 1; Dr. E. M. Walker, 1.

The total number of lectures was 175, which were distributed as follows: Alliston, 1; Arnprior, 1; Ayr, 1; Bowmanville, 3; Brampton, 12; Brantford, 1; Campbellville, 1; Cobourg, 1; Fairbank, 1; Fergus, 1; Galt, 1; Guelph, 4; Hamilton, 11; Harriston, 2; Kincardine, 1; London, 6; Milton, 1; Montreal, 1; New York, 1; Niagara Falls, 16; North Bay, 5; Oshawa, 3; Ottawa, 3; Perth, 1; Peterborough, 4; Picton, 1; Port Colborne, 2; Port Credit, 1; Port Dover, 1; Port Hope, 1; Port Nelson, 1; Sarnia, 2; St. Catharines, 13; St. Thomas, 2; Simcoe, 1; Stratford, 2; Teeswater, 1; Toronto, 63; Whitby, 1.

Professor J. F. Macdonald's weekly radio book-reviews were continued from September until the end of April. These talks receive warm commendation, by letter chiefly, from persons living as far west as the Rockies and as far east as Halifax. In some places listening groups have been formed for discussion of the book reviews.

The Inter-University Radio Debates were arranged as usual during January, February, and March. Undergraduates of seventeen Canadian Universities participated. The team representing the University of Montreal was this year's winner. These debates do a great deal to strengthen the good feeling existing among undergraduates in the various universities. The debating teams represented Dalhousie, St. Francis Xavier, Mount Allison, New Brunswick, Bishop's, McGill, Laval, Montreal, Ottawa, Toronto, Queen's, Western Ontario, McMaster, Manitoba, Saskatchewan, Alberta, and British Columbia.

Each normal school in the Province was visited during the spring term, as

is done every year, and the extension facilities available, especially the pass course in arts for teachers, were outlined to the students therein. A few collegiate institutes and high schools were visited, on invitation, and the various courses were explained to the pupils. This work should be greatly developed if there were means to do so. The pupils in the secondary schools do not know of the many university courses that are open to them nor do they know for what careers the different courses are intended to qualify those who complete them. Personal guidance is eagerly sought. Many parents come with their sons and daughters for advice in choosing courses and such advice is gladly given—but the giving of it consumes an incredible amount of time.

While university publicity is inextricably bound up with university extension, there is a separate field for the former and a wide one; of this full advantage has been taken. Articles have been written for and have been published by educational journals, general periodicals, and newspapers. The university advertising has been carefully placed. News items have been supplied to newspapers throughout the Dominion. The radio is used for publicity as occasion requires. As the clipping service abundantly shows, the University is given many columns of newspaper space each week. Through extension and publicity the University supplies education and news; at the same time it makes thousands of friends.

(15) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF SOCIAL SCIENCE

(*Acting Director, Professor E. J. Urwick*)

Two causes have combined to make necessary a change in the conditions of entry to the course in Social Science. On the one hand, the standard of intelligent and efficient work expected of responsible social workers tends to rise, and should of course rise, as the field of administration in the different social services widens its area. On the other hand, the continued increase in the number of applicants for admission to the course (nearly 60 last year) makes difficult the task of arranging satisfactory practical training for students. We already ask the established agencies to bear a heavy burden in their co-operation —always most readily given—in the training of our students; but these are rather strict limits to the number of learners for whom suitable work can be found under adequate supervision. For these reasons the Committee of the Senate in charge of the course has decided that in future the condition of entry to the course shall be the possession of a university degree, with the proviso that exceptions shall be allowed in the case of men and women qualified by special experience or proved capacity in other fields.

This change will, it is hoped, lead to improvements in the training given. In the field of human and social relationships and the varied problems connected with them the lecture method of teaching is not satisfactory. We hope in future to be able to use, to a much greater extent, the method of group discussion and seminar work, combined with more continuous field work, especially for students who (like the graduates from the course in sociology in our University) have already spent some years in theoretical study. At the same time the system of apprenticing special students to social agencies during the second year of their course will be discontinued, except in the rare cases in which an agency desires a part time worker who need not be fully trained.

The department again acknowledges its debt to the numerous agencies in the city and the Province who have ungrudgingly given their help in the practical training of our students. We express our particular appreciation of the increased assistance afforded by the Public Authorities, who are often able to offer unique opportunities to students desiring special experience.

(16) REPORT OF THE DIRECTOR OF THE SCHOOL OF NURSING

(Miss E. K. Russell)

The year 1935-36 has been a difficult one for this School as it has been marked by increase in work together with shortage of staff and inadequacy of resources: at the same time there has been interesting progress that is encouraging, even while it puzzles us to find a way to develop quickly enough to use the opportunities that are presenting themselves.

Perhaps this report should repeat that the distinctive work of this school of nursing is found in the undergraduate course, a three-year training in nursing that prepares at one and the same time for the practice of public health nursing and of hospital nursing. The distinctive character of this training is made possible by the fact that the School has its own income; that it is, therefore, independent of hospital support; and that, consequently, the School has freedom in the planning of the training course, that is, freedom with regard to content, order of arrangement, selection and use of staff, living and working conditions, and so on. It is curious that it should be so difficult to explain that this freedom is quite unique. It may be, however, that the time is close upon us when all schools of nursing will have to find a like form of organisation as independent institutions, that is, independent of hospital support. If that be so, it is well that a small piece of research work, such as this, is under way in preparation for more general change.

As we now draw near to the end of the third year of the School's existence, the students of the first class to enter have not quite completed their course, so obviously it is too early to offer conclusions concerning this work. However there is ample evidence for the making of certain claims. One of these is that the work needs doing. There is no doubt that in general principle it is sound. Schools of nursing that are independent of hospital support are greatly needed, and are quite possible; in fact the most serious obstacle to their establishment is a bad tradition of thought. Sooner or later this will have to be changed: if for no other reason, the preparation of nurses for public health work would make it necessary.

Our second claim is that we ought to be doing this experimental work more thoroughly. It would be well worth while. A slight increase in our financial resources would make this possible, and in the end much time and effort would be saved by handling the whole task more resolutely.

We find that the other nursing schools and nursing organisations of the Province are looking to the School as an auxiliary institution to which they can turn for help in working out their immediate problems. Our help is given through special refresher courses for graduate nurses and the demand for these is insistent. As a school of the Provincial University we should be ready to give this help, so every effort must be made to meet the demand.

The statistical report for the year offers the following information:

Pupils in the 1st year of the new three-year course	11
Pupils in the 2nd year of the new three-year course	10
Pupils in the 3rd year of the new three-year course	7
Nurses in the 4th year of the former four-year course in public health nursing. (The last class to enter that course: the new three-year course takes its place)	7
Graduate nurses in the certificate courses	46
Special students from other countries not enrolled in certificate courses	5
Occasional students, including undergraduates from Toronto Hospitals	159
Nurses enrolled in refresher courses	106

(17) REPORT OF THE DIRECTOR OF THE DEPARTMENT OF MILITARY STUDIES

(Brig.-Gen. G. S. Cartwright, C.B., C.M.G.)

I have the honour to report as follows upon the work carried out in this department during the academic year 1935-36:

The enrolment both as regards students taking this as an academic subject and in the special classes for the War Office examinations was satisfactory.

During the year great interest was displayed by all taking the lectures in this department and the examination results were very satisfactory; especially in the War Office (O.T.C.) examinations in March, 1935, when the percentage of those obtaining "A" and "B" certificates was .85 of those who wrote, comparing very favourably with other universities in Canada and Great Britain.

The possession of the O.T.C. certificate has proved to be of a practical value to graduates in choosing a career; for there are now a number of former students from this university with these qualifications who have obtained commissions in the Canadian Permanent Forces, the British Army, Air Force and the Indian Medical Service.

As the activities of this department do not appear to be understood by many I wish to make a few remarks relative to the value of the studies carried on therein.

Since the great war, Great Britain, in order to prove to other nations that her wish for a world peace was sincere and honest, reduced her armed forces below what has now been stated to be the safety limit and I think it can be claimed that her weakness was one of the factors leading up to the present disturbed conditions in Europe. The knowledge that Ethiopia was ill-equipped, possessing but few modern weapons and, therefore, not prepared to put up a strong resistance against the Italian up-to-date army undoubtedly encouraged Mussolini to launch his attack on that country. All the above tends to indicate that unless a universal and well-balanced disarmament can be agreed upon and carried out by all nations, any one country weakening its defensive power below certain limits, tends to encourage war and not peace.

Mr. Stanley Baldwin, in addressing the British House of Commons, in support of the new loan for increased armaments, pointed out that although he considered it a terrible thing to say, it was necessary in order to check aggressor nations for the others to be much more ready for war than they are to-day.

The more war is understood, the more all will strive to find a way to prevent it and the ignorance of war and what it means is a case where little knowledge leads to trouble and those who read and understand military history and military science as a general rule will prove to be the best advocates for peace.

For these reasons it is thought that enrolment in the Department of Military Studies is worth while for all students desirous of understanding the problems of peace and war and thus equipping themselves to advance sound, well-balanced arguments in support of world peace.

(18) REPORT OF THE UNIVERSITY HEALTH SERVICES (MEN)

(George D. Porter, M.B., Director)

1935-36

I.

The report for the year shows that there have been

Examinations

First year students	830	
Second " "	647	
Senior " "	251	
		1728
Re-examined by Specialists		14
Total		1742

This does not include the O.C.E. students as in previous years, thus accounting for the smaller number explained.

Results

Those found fit for physical training	94%
Those having some disability requiring corrective or light exercises	4%
Those unfit for physical training	2%

Twenty four (24) students were exempted for the following causes.

Heart trouble	7	Injury to spine	1
Infantile paralysis	2	Tuberculous Knee	1
Operations	3	Chest trouble	4
Diabetes	1	Nephritis	1
Peripheral Neuritis	1	Fracture	1
Otitis Media	1	Anaemia	1

We are pleased to report that no cases of Venereal disease have come under our observation this year. The average height of this year's freshmen is, 5′ 8¾″ and the average weight 142½ lbs., the same as those of last year.

Improvement in the physical condition of second year students is shown in the majority of cases. Thirty per cent. of those below category A.I. in their first year had their rating raised during the year, while only six per cent. in all categories had their rating lowered. These latter were lowered owing to illness or accident during the year.

One hundred and thirty five students were enrolled in the special classes under Mr. Martin, for the correction of such defects as round shoulders, flat feet, and spinal curvature.

Some of these were enrolled for the full year, and others for periods of from one to six weeks on account of injuries or disabilities, and those recovering from illness, which prevented their taking the regular P.T.

This class was under the charge of the late Mr. Donald Barton, for sixteen years, and he did splendid and faithful work during that time. He was always most considerate and efficient, and his absence will be felt by all those who have been associated with him during the past years.

Apart from our perennial epidemics of influenza, and a few cases of Scarlet fever and Measles, the general health of the student body has been excellent.

During the year, the usual large number of students come in for treatment of minor injuries received on the campus and in the gymnasium, and also for personal advice on health matters.

Dr. Charles Gossage was appointed during the year, by the Athletic Directorate, to attend to emergencies arising in the gymnasium and upon the campus: his hours are from five to six-thirty o'clock, when these accidents are most liable to occur. This is a much needed, and greatly appreciated service for the students.

The following are causes of absence from physical training classes for periods varying from one day to three months.

Colds	258	Heart trouble	2
Influenza	48	Adenitis	1
Sore throat	32	Appendicitis	1
Tonsillitis	4	Choroiditis	2
Bronchitis	4	Gastralgia	2
Chicken pox	1	Otitis media	2
German measles	11	Nephritis	1
Scarlet fever	2	Conjunctivitis	2
Sinusitis	1	Dental trouble	6
Lumbago	2	Transfusions	3
Enteritis	2	Injuries:	
Vaccination	3	Fractures	2
Local infections	6	Dislocations	3
Athletes foot	3	Sprains	67
Eczema	1	Cuts	12
Furunculosis	9	Abrasions	14
Psoriasil	1	Blisters	10
	388	Operations	13
			143

Total.....531.

This year lectures on Personal Hygiene and First-Aid were given to first year students, by the Director of Health Service. Our Acting Gymnasium Director, Mr. Martin, made a request to the Athletic Association for these lectures to be held as part of the Physical Training Course, which was granted.

Regarding these lectures, "Varsity" reported that, "Wide-interest was evidenced by undergraduates, when they crowded the lecture room to capacity on the occasion of every address."

(18) REPORT OF MEDICAL ADVISER OF WOMEN

(Dr. Edith Gordon)

II.

I beg to submit the following report of the Medical Adviser of Women for the year 1935-1936.

The health of the women generally throughout the year has been excellent. While the Easter term brought several cases of Scarlet Fever, Measles, and Mumps, there was less absence from classes because of colds and minor indispositions. The physical condition of the entering students was particularly good.

Physical Examinations: There were 512 physical examinations. Of these 186 were first year students in University College, Household Science, Medicine, Applied Science and Dentistry. The rest were Arts students in the other years of University College, in Victoria, Trinity and St. Michael's Colleges, and students from the various departments of Public Health Nursing, Social Science, Occupational and Physiotherapy, Graduates, Ontario College of Education and Library School.

For the past three years, the physical examination has included an intercutaneous tuberculin test, and for the past two years those students who give a positive test, have been requested to have an X-ray of the chest taken. In this way it is hoped that an early diagnosis of tuberculosis may be made, if it is present. Several students have been under supervision all year because of a history of contact with an open case of tuberculosis, or because of suspicious findings in the X-ray. No frank case of tuberculosis has been discovered. 346 I.C. tests were made. Of these 55.5% were positive and 44.5% were negative.

Throughout the year 20 re-examinations were made on students whose condition was not wholly satisfactory on entrance, and whom it was felt needed rechecking at a later date.

All women participating in sports are required to have a physical examination before playing the game they have elected. 156 such examinations were made.

Many students return each year for a physical examination in order to discover their physical status from year to year. An effort was made to have the graduating year report for a final check-up in February, and those who responded to the invitation felt that they had received something worthwhile. It is hoped that this examining of the graduating class in the Easter term may become an accepted fact. Valuable information could be obtained if this were enforced for the whole class.

Consultations: Again large numbers of students have availed themselves of the opportunities to consult with the Medical Adviser of Women. It is almost impossible to keep a complete record of all who call daily, but it is estimated that more than two thousand calls were made in the past year. These are for advice and treatment. It is gratifying to note that students from every faculty and department come into the Medical Office, and show a deep appreciation of the service rendered there. This individual health education, and care of minor ailments, brings the Medical Adviser into close touch with large numbers of the women students. By it frequently serious illness is avoided and greater physical efficiency is assured. 51 vaccinations were performed, and a considerable number of Shick and Dick test were done, and following them the administration of toxoid and scarlet fever toxin was made in the susceptible individuals. 92 Urinalyses were made. The taking of the Haemoglobin is part of the routine physical examination, but complete blood counts are done where it is thought necessary.

Lectures: A course of 25 lectures in Personal Hygiene and First Aid was given to the first year students in the course in Physical Education. A group of four lectures was given in March to the students in the one year course in Public Health Nursing. Three talks on Personal Hygiene were given in the fall to the entering students. Miss Coventry very kindly made the necessary arrangements for these talks which were given in the Household Science Building.

Rest Rooms: The rest rooms were used regularly by the students who were substituting rest periods for the usual physical training classes on the advice of the Medical Adviser. They were also used occasionally by other students who were recovering from illness, and were excused from physical training for a week or two. In addition, many of the students found an occasional hour's rest helped them meet a heavy day's program, and were glad to have a quiet spot in which to relax. Through the rest rooms the Medical Adviser can keep in touch with students who most need care and supervision, and who might not otherwise come in contact with her.

During the final examinations the Medical Office was taxed to its maximum capacity in caring for students who through illness needed special help at that difficult time. 72 different students wrote one or more examinations in the Medical Office, and 184 papers were written under the supervision of the Medical Adviser. This service relieves the presiding officers in the examination halls of a difficult problem, and probably prevents complete breakdowns in some cases.

The Medical Office for women continues to cooperate with the department of gynaecology in a piece of research work. This opportunity is much appreciated by the Medical Adviser. Gratifying results have been recorded in many cases under observation and treatment.

Anthropometric studies have been continued, and it is hoped that the coming year may see this work very much enlarged.

Needs: The physical needs of the women students can only be met adequately in a building sufficiently large and properly equipped for developing their physical potentialities through directed physical training, competetive sports and recreational opportunities. It is hoped that the day when this will be available for them is close at hand.

Physical Examinations, 1935-1936

University College (entering students)	147
University College (others)	66
Victoria College	14
Trinity College	19
St. Michael's College	16
Household Science (entering students)	27
Household Science (others)	1
Medicine (entering students)	10
Medicine (others)	5
Applied Science	1
Dentistry	1
Public Health Nursing (entering three year course)	11
Public Health Nursing (others)	41
Ontario College of Education and Library School	74
Social Science	26
Occupational Therapy	3
Physiotherapy	5
Graduate Studies	8
Miscellaneous (Art, Music, Occasional)	4
Total	479
Margaret Eaton School	33
Total Examinations	512
Students required to take physical training, first year University College, Medicine, Household Science, Applied Science and Dentistry	186
Grades A1 and A2—physically able to participate in the gymnastic and athletic activities	91%
Grade B1—needing special corrective work	6%
Grade B2 and C—excused from physical training requirement because of some temporary or permanent physical handicap	3%

(18) REPORT ON ATHLETICS AND PHYSICAL TRAINING

(*T. A. Reed, Secretary, Athletic Association*)

III.

The work of the department was handicapped shortly after the opening of the season when Mr. Donald M. Barton, our head gymnasium instructor, was stricken with an illness that terminated fatally on November 3rd. Appointed to the position on the resumption of organised activities after the close of the war, he had been in charge of the gymnasium and corrective work for sixteen years. Quiet, unassuming and modest, he had an influence far-reaching and of unquestionable good to the many thousands of students who passed through his hands and his special aptitude for the proper correction of disabilities made him a most valuable officer to cooperate with Dr. Porter in his work. His loss has been greatly felt. For the current session the work was reorganised under Mr. W. H. Martin and Mr. J. E. McCutcheon with the assistance of Charles Zwygard, a gymnast of outstanding ability.

Compulsory Physical Training:

Under this heading the work followed the usual programme, viz., Danish gymnastics, elementary apparatus and mat work and exercises on the horse and mats. The usual options were allowed, viz., (*a*) participation in competitive sports in the several interfaculty series, and, (*b*) enrolment in the Canadian Officers Training Corps. As far as possible first year men were urged to join the Life Saving and Learn-to-Swim classes for which they were granted Physical Training credits.

Men students enrolled in the first and second years		1795
From third and fourth years (being deficient in previous years)		15
From Wycliffe College		1
		1811
From this total must be deducted those:		
(*a*) With credit for two years physical training but repeating academic work	239	
(*b*) Exempt on medical and other grounds	18	
(*c*) Withdrawn from college during the session or registration cancelled	28	
		285
		1526

These 1526 elected to take their Physical Training as follows:

In Physical Training classes	1181
In the Canadian Officers' Training Corps	177
In the Corrective classes	90
In the following Intercollegiate & Interfaculty sports (part time):	
Rugby Football	158
Soccer Football	37
Track	31
English Rugby	9
Basketball	130
Hockey	114
Indoor Baseball	92
Boxing, Wrestling & Fencing	115
Swimming and Water Polo	62
Gymnastics	22
Lacrosse	40
Volleyball	57
Rowing	4
Jui Jitsu	3
Failed to register in Physical Training	51
	2373
Less duplications	847
	1526

General Physical Training:

This work was carried on with Mr. W. H. Martin in temporary charge following the death of Mr. Barton, assisted by Messrs. J. E. McCutcheon, Chas. Zwygard and W. W. Winterburn. There were forty-four compulsory physical training classes held each week which included special periods for corrective work for those who had certain physical deficiencies.

In the various branches of athletics the following were enrolled:

Class	Enrolled	Weekly Periods
Boxing	48	5
Wrestling	64	5
Fencing	45	5
Gymnastics	35	3
Track: Outdoor	67	5
Indoor	42	2
Basketball	316	45
Indoor Baseball	252	21
Volley Ball	225	24
Lacrosse	130	21
Life Saving	382	13
Water Polo:		
Interfaculty	100	18
Intercollegiate	30	3
Swimming:		
Interfaculty	116	10
Intercollegiate	35	3

It is interesting to note the addition of a new activity, namely Jui Jitsu. Classes were organised by two Trinity students, Rev. P. Y. Kurose and Rev. T. Matsumoto. These two gentlemen hold the championship in Jui Jitsu known as

the "Black Belt". Altogether thirty-four men wished to register but on account of the novelty of the work it was decided to reduce the group after the Christmas vacation to thirteen pupils. Instruction was also given in Japanese fencing, with the assistance of S. Shimizu, and members of the class gave performances at the Alumni Night in Hart House, at Eaton's Young Men's Club and at Trinity College School, Port Hope.

Two hundred and four students enrolled in the Learn-to-Swim classes and three hundred and eighty-two in the Life-Saving classes. Of the latter one hundred and ninety-four received the award of the Royal Life Saving Society.

Mr. Martin in cooperation with Dr. Porter organised lectures on personal hygiene, artificial respiration and resuscitation. These were largely attended, the students being given credit for attendances at the three lectures. There was an average attendance of five hundred at each lecture.

Intercollegiate Athletics:

The University of Toronto entered teams in all competitions winning the championships in the following:—Soccer, Intermediate Tennis, Senior Harrier, Intermediate Track, English Rugby, Intermediate Basketball, Gymnastics and Intermediate Swimming. In Rugby the Varsity Senior team, under the excellent coaching of Mr. Warren Stevens, was undefeated until the Intercollegiate playoff on November the 16th when Queen's won the Yates Cup after a bitter contest on our field. Mr. Stevens also coached the Senior Basketball team and Mr. McCutcheon the Intermediate and Junior Basketball teams. Altogether twenty-five teams represented the University of Toronto, two hundred and ninety-four contestants wearing the university colours. Of these thirty-two took part in more than one activity.

Interfaculty Athletics:

The subjoined schedule shows the continued interest on the part of the students in competition for the various Cups therein named. Over one thousand players participated. Victoria College won the Mulock Cup presented by our Chancellor, Sir William Mulock, in 1894. This College was also successful in winning the Arts Faculty Cup for Soccer and the Jennings Cup for Hockey. The Medical Faculty won the larger number of interfaculty contests, namely in Basketball, Indoor Baseball, Gymnastics and Volleyball.

Series	Name of Cup	Winner	Inter-faculty Teams	Players
Rugby	Sir Wm. Mulock	Vic.	11	275
Track	W. L. Rowell Memorial	U.C.		56
Soccer	Arts Faculty	Vic.	9	145
Harrier	J. Brotherton	O.A.C.		32
Hockey	W. T. Jennings	Vic.	14	186
Basketball	Clifford Sifton	Jr. Meds.	19	228
Lacrosse	Dr. W. A. Dafoe	O.C.E.	11	116
Boxing, Wrest. & Fencing	Francis Davison	O.A.C.		59
Indoor Baseball	A. G. Spalding & Co.	Jr. Meds.	16	234
Swimming	A. M. Fitzgerald	Trin.		38
Water Polo	H. P. Eckardt	Sr. S.P.S.	8	104
Indoor Track	Toronto Cricket Club	Trin.		43
Tennis	F. Y. McEachren	W. P. Pigott, Ap.Sc. I		48
Gymnastics	H. A. Wilson	Meds.		12
Volleyball	Victoria College Staff	Jr. Meds.	16	186
				1762
Less duplications				716
Number of contestants				1046

The trophy presented last year in memory of the late John C. H. Copp, a student whose example both on the playing field and in other university activities

will not soon be forgotten, was this year awarded to E. A. (Gus) Greco, who, by his team mates, was adjudged the worthiest in the current year. Other members of our Senior Rugby team distinguished themselves in academics, namely: M. F. (Turney) Williams who received the John C. Copp Memorial Scholarship award for 1935-36, and C. C. (Cam) Gray who received the award for 1936-37. A former member of the Rugby team, O. M. Solandt, distinguished himself in the final year of Medicine by winning no less than six scholarships and the Gold Medal.

In conjunction with the Medical Health Service the Athletic Directorate recommended to the Board of Governors an extension of the emergency surgical service on account of the large number of students taking part in competitive athletics and gymnastics. In order that prompt attention could be given for minor injuries and first aid in more serious cases arrangements were made whereby Dr. Charles D. Gossage was in attendance in the late afternoons and early evenings to supplement the work under Dr. Porter's direction. The experiment has proved so successful that it is hoped that it will be further developed in the near future.

Our Arena was again placed at the disposal of the Promenade Symphony Concerts for the summer of 1935, the number of concerts being increased from sixteen to twenty-three. Altogether over one hundred thousand people listened to admirable programmes conducted by Mr. Reginald Stewart at popular prices, the proceeds being divided equally among the one hundred players participating. It is a matter of pride that the University can thus contribute to the artistic life of the City and to the general public good by the use of such a building for purposes other than those originally intended.

The season now closing marks the retirement of one who has been closely associated with university and intercollegiate athletics for the past twenty-one years. Professor Michael A. Mackenzie was appointed by the President as Faculty Representative on the Athletic Directorate in 1915. For twenty-one years he has been a member and for sixteen years he has filled the office of President of the Athletic Directorate and for a similar number of years has been the University of Toronto's permanent representative on the Canadian Intercollegiate Athletic Union. His influence has been wide spread, his judgment has been keen and fair and he has done more to solidify intercollegiate good-will than any other factor since the war. The esteem in which he has been held by the sister universities has been a potent factor in cementing the bonds of friendship.

The Athletic Directorate:

The Athletic Directorate for 1935-36 consisted of Dr. J. A. McCollum (President), Professor M. A. Mackenzie, Professor J. F. Macdonald, Dr. W. Easson Brown, Messrs. J. H. MacPherson (Vice-President), F. P. McInnis, J. R. Coulter, H. R. Marks, W. A. McCatty, H. B. Squires, and, *ex officio*, Dr. G. D. Porter, Medical Director, Warren Stevens, Athletic Director and T. A. Reed, Financial Secretary.

(18) DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN STUDENTS

(*Miss I. G. Coventry, Director of Physical Education*)

IV.

During the session 1935-36 there were 227 students enrolled in the physical education classes and approximately 770 class periods of instruction were given by the physical instructor and her assistant, Miss J. M. Forster.

Required Physical Training: The required physical training class with an enrolment of 189 students was subdivided into 20 class periods a week. This

plan assisted principally in accommodating the students who presented various academic time-tables and also lessened the congestion on the gymnasium floor in the inadequate gymnasium quarters.

Students from University College	163
" " Faculty of Medicine	12
" " Applied Science	1
" " Household Science	11
" " Faculty of Dentistry	1

Corrective and Remedial Classes: Class periods of corrective and remedial gymnastics were given to students who were medically advised to take the special course arranged for their welfare. This essential part of physical training was under the personal supervision of the physical director. Marked improvement was noted and reported to the medical office at the end of the session.

Four Year Diploma Course in Physical Education in conjunction with the pass arts course: There were 12 students registered in this course and approximately 686 periods of instructions and lectures were given. Theory subjects and lectures numbered 290 and practice subjects 396.

The decrease in the number of students attending the course is due to the revision which now requires a higher scholastic standing and includes additional hours of class periods and lectures.

It is still interesting to note that the women graduates who have been granted diplomas in physical education by the University of Toronto are still in continued demand as full time physical directors in collegiates, technical, and high schools, in Toronto and other cities in Ontario.

Swimming: There were 226 students from all colleges, faculties and departments and approximately 363 periods of instruction were given by Mr. A. L. Cochrane and Miss A. Cochrane during the session of seven months.

Students from University College	79
" " Victoria "	43
" " Trinity "	13
" " St. Michael's "	8
" " Faculty of Medicine	12
" " Household Science	5
" " Occupational Therapy	1
" " Social Science	7
" " School of Nursing	21
Administrative Staff	39
Dental Nurses	6

(18) REPORT ON ATHLETICS FOR WOMEN

(*Miss A. E. M. Parkes, B.A.*)

V.

During the session 1935-36, the Women's Athletic Association sponsored intercollegiate competition in basketball, tennis and swimming and interfaculty competition in the above three sports as well as hockey, badminton, golf and indoor baseball. Students taking part in one or more of the activities of the Association were registered in University, Victoria, Trinity and St. Michael's Colleges, the Faculty of Medicine, the School of Nursing and the Department of Social Science, Occupational Therapy and Physiotherapy.

As in previous years, the expenses of interfaculty competition were borne in the main by the college and faculty associations, and of intercollegiate competition by the university association. To make this possible, in addition to the amount earned by the students at their Parking Stations during football games, contributions were made by the men's Athletic Association and the University College Women's Undergraduate Association. The use of the Arena for hockey

practice and of the Hart House gymnasium and pool for certain events was also generously permitted by the men's Association.

The intercollegiate tennis championship returned to Toronto this year, with Miss Claire Walsh, Victoria I, winning the title. The basketball was won by the University of Western Ontario. The first women's intercollegiate swimming meet was held at McMaster in February, with teams from Macdonald Hall, Guelph, and Toronto competing with the home team. Toronto, with a team of six, won a first and second in each event. Although no intercollegiate hockey was played, the University entered a team in the Toronto Hockey League senior series and won the championship.

The interfaculty record is as follows:

Series	Cup	Winner	Competitors
Tennis	Curlette Cup	Victoria	36 (6 teams)
Basketball	St. Hilda's Cup	St. Hilda's	135 (11 teams)
Hockey	Harston Cup	University College	65 (5 teams)
Swimming	Interfaculty Cup	University College	30 (6 teams)
Badminton	U.C. W.U.A. Cup	St. Hilda's	36 (6 teams)
Baseball	University College Cup	Victoria	30 (3 teams)

The Athletic Directorate for 1935-36 was made up as follows: Dr. C. C. Benson, President, Mrs. W. A. Kirkwood, Mrs. W. B. Elsley, Dr. E. H. Gordon, and the Misses J. M. Forster, E. M. Ardagh, J. B. Atkinson, M. Cowan, J. F. Davey, M. E. Dignam, J. E. Leitch and A. E. M. Parkes, Financial Secretary.

(19) REPORT OF THE WARDEN OF HART HOUSE

(J. B. Bickersteth, Esq., M.C., M.A.)

General

The total membership of Hart House during the past year was four thousand four hundred and forty-one of whom three thousand seven hundred and ninety-six were undergraduates and six hundred and forty-five were senior members. These figures compared with those of 1934-1935 show a diminution of about fifty undergraduates. The number of men using the Great Hall was very much larger than last year and the total number of meals served in Hart House from 1st July 1935 to 30th June 1936 shows an increase of 29 per cent over that of the previous twelve months. Among the undergraduates the 20c. lunch was the most popular meal and the changes introduced in January 1935 evidently appealed to the student body in general. It is unlikely, however, that circumstances will permit the serving of meals at this very low rate to continue. The committees themselves realise this and are making plans to introduce a slightly higher scale of prices. Early in February owing to the generosity of the Massey Foundation three hundred and fifty specially designed chairs were installed in the Great Hall. These chairs are not only both durable and comfortable, but are also in keeping with the dignity of the Hall. During the winter the experiment of serving hot coffee in the shop was tried and has proved highly successful. During part of July and August Hart House was used by the French-Canadian teachers attending the summer school arranged by the Quebec Government, meals being served in the Great Hall throughout the period of the course. In January the King's death resulted in the cancellation of the C.O.T.C. ball. Instead of the Athletic At-Home a dinner was held at the end of March in the Great Hall. Another innovation was the so-called Alumni Night on 20th March. On this occasion when there were many athletic and swimming events, music by the Hart House Glee Club, an exhibition of graduate paintings in the art gallery, bridge, dancing and other entertainment the entire building was put at the disposal of the Alumni Federation. About 2300 people were present and the whole evening was an unqualified success. The committees of Hart House were delighted to be of

assistance to the graduates by making Hart House available for this purpose. With these exceptions the usual social functions were held during the winter, though the character of the so-called stunt nights was greatly improved by requiring all acting to take place in the Theatre. Efforts were made to develop closer relation between undergraduates and the University Settlement and a larger number of men and boys of the Settlement than ever before were entertained at the annual Christmas party. The Warden's Christmas dinner was held on the last night of term in December and again showed to what an extent the University draws its students from all over the world.

At the end of September a simple but dignified memorial plaque to Mr. Henry Sproatt was erected in the hallway near the main entrance to Hart House. The final words of the memorial are "His skill as a master of the Gothic form is woven into the fabric of this House". The cost was met partly from the funds of Hart House and partly by the Massey Foundation.

On his appointment as High Commissioner in London the Board of Stewards sent a resolution to the Hon. Vincent Massey congratulating Mrs. Massey and himself and emphasising the great contribution the Massey Foundation had made to academic life by the creation of Hart House.

Music

Under the able direction of Mr. Charles Peaker the Hart House Glee Club have made outstanding progress during the past year as was shown by their Friday Afternoon Recital before Christmas and their Sunday Evening Concert on 1st March. On the latter occasion the Great Hall was packed and the Glee Club received an ovation. In view of the excellence of these performances the Glee Club have again been permitted to bear the name of Hart House and it is confidently expected that future years will see this organisation become one of the outstanding features in the musical life of the University. The usual series of Sunday Evening Concerts was held in the Great Hall, one of the most interesting being that given by the Conservatory String Quartet when half the programme was played on 17th century viols and half on modern instruments. In September Hart House through the generosity of a few friends was able to obtain complete control of this fine consort of viols which up till then had been jointly owned. The Friday Recitals began at the end of October and continued till the end of February. The Songsters and the Midday Sing Songs were held as usual. To Mr. Campbell McInnes, Mr. Ross Workman and to all the musicians of Toronto Hart House owes an incalculable debt. This year the experiment was tried of introducing light but good music into the east common-room on certain days at the lunch hour and was sufficiently encouraging to justify its continuance next year.

Art

The arts and crafts room has now completed its second year of existence. The standard of the work shown at the annual exhibition in the print room, consisting of sculpture, lino cuts, etchings and wood carving was a tribute to the instructor, Mr. Carl Schaefer.

The series of exhibitions held in the art gallery throughout the winter attracted wide interest. The artists were as follows: Arthur Heming, the Canadian Society of Painters in Water-Colour, Arthur Lismer, the late Robert Holmes, Emily Carr, the late Harold McCrea, Gordon Webber and Mr. and Mrs. George Pepper with a group of artists who had been working in Quebec. There were also exhibitions of textile designs and of Rembrandt reproductions. The photographic show arranged by the Camera Committee in January was as popular as ever and the exhibition of work by undergraduates, though not drawing on as many students as in previous years, and the display of work by faculty and graduate members were both of considerable interest. The Art

Committee arranged a series of exhibitions in the print room when reproductions of 16th, 17th, 18th and 19th century masters were shown and prints were always on display in the cabinet designed for that purpose. Before Christmas Professor John Alford kindly gave a series of four informal lectures on certain of the old masters and in the New Year on three successive Wednesdays Mr. Peter Haworth spoke on the crafts. In January Mr. Alec Miller, the well-known sculptor in wood, gave a lecture on the history of sculpture illustrating his remarks with examples of his own work. The Art Classes under the direction of Mr. H. S. Palmer were again held every Thursday night from October to February. Owing to the generosity and goodwill of each successive Graduating Year and with the help of the Murray and Harold Wrong Memorial Fund and other small sources of revenue several pictures have been added during the past year to the Hart House collection, namely, "Saguenay River" by C. F. Comfort, "Mist, Rocky Mountains" by F. M. Bell-Smith, "Memory's Melodies" by W. J. Wood, "Dark Girl" by Prudence Heward and "Howe Sound" by W. J. Phillips. That Hart House has already acquired a collection of some importance is proved by the fact that eight pictures were borrowed for a special exhibition of Canadian work arranged by the National Gallery at Ottawa. Much time and thought have been given to the problem of maintaining the collection in good repair and all artists concerned have been asked to fill up a form giving technical information about their pictures. Several volumes have been added to the small art library in the gallery.

Library

The experiment of holding two "Library Evenings" in 1934-1935 proved so encouraging that during the past winter three such evenings were arranged and on each occasion there was an average attendance of forty to fifty undergraduates, smoking being allowed in the library. The speakers were Mr. J. V. McAree, Mr. Morley Callaghan and Professor A. T. DeLury. The first two spoke on their leisure reading and the latter on Irish literature. The address was in each case followed by a discussion. In January Mr. D. A. Sinclair who has done excellent work as curator wished, on reaching his final year, to be relieved of his duties. Mr. W. B. Wood (I U.C.) was appointed as his successor. The committee have done their best with the funds at their disposal to keep the library up to date and have added about one hundred new volumes. The problem of the removal of books from the room was somewhat serious during the earlier part of the year, but the checking in May showed a net loss of only four volumes which in view of the fact that there is no definite supervision of the library may be considered as very satisfactory. Several exhibitions of private press books have been arranged in the special display case. The committee have also maintained a representative selection of periodicals in the reading-room where a rack was installed to hold all magazines and reviews.

Debates

The usual number of debates were held and it is interesting to record that among the members of parliament at Ottawa are now to be found some who as undergraduates were active in debates at Hart House. The resolutions dealt with Italy and sanctions, a vote of confidence in His Majesty's Government at Ottawa, the intrusion of professors into politics and Quebec nationalism. Major C. G. Power, Minister of Pensions and National Health, was an hon. visitor at the last debate and took part in the discussion. At the November debate two undergraduates from British Columbia and Saskatchewan were hon. visitors. In April two Australian debaters stayed in Hart House, but owing to the proximity of examinations at that time of year no debate was possible. At the February debate carefully worded resolutions were passed conveying the condolence of the House to Her Majesty Queen Mary on the death of His Majesty

King George V and a tribute of loyalty to His Majesty King Edward VIII. It was pointed out that the King, as Prince of Wales, had on several occasions visited Hart House and that he had presented a signed portrait of himself which hangs over the Speaker's chair. A reply to the resolutions was subsequently received from Lord Wigram thanking the House for their two resolutions, stating that His Majesty has the happiest memories of his visits to Hart House which date back over a period of seventeen years and assuring Hart House that he will always follow its fortunes with a keen and personal interest.

STUDENT CHRISTIAN MOVEMENT

The September Conference at Lake Couchiching was attended by one hundred and seventy-six students from Canadian universities and in the fall other week-end conferences were held. During the Christmas vacation ninety-five undergraduates attended the Twelfth Quadrennial Convention of the Student Volunteer Movement. From time to time prominent religious leaders such as Dr. Wilson Cash, Dr. J. H. Oldham, Dr. T. Z. Koo, Dr. Samuel Zwemer, Dr. Peter Manniche and Dr. Sherwood Eddy have addressed the students. The holding of a series of after luncheon meetings in the music room when short addresses were given by members of the university staff and others was a successful experiment. Holy Communion was celebrated monthly in Hart House Chapel with an excellent attendance and during Holy Week services were held there. In the spring various changes were made in the organisation of the S.C.M. which it is hoped will result in greater efficiency. The Rev. Wilfred Lockhart has completed his first year as General Secretary of the S.C.M. and has carried out a difficult task with success.

THEATRE

Six plays were produced under the direction of Mrs. Nancy Pyper as follows: October "Once in a Lifetime"; November "Hounded by Hate"; December "Wappin' Wharf"; January "The Power of Darkness"; February three one-act plays; April "Judgment Day". During the last week in March the Central Ontario Drama Festival took place in the theatre. Many plays were produced by the college dramatic societies and this year the presentation of "The Inspector General" by the University Drama Committee marked the first attempt for some years to combine undergraduate talent for a representative university play. With the full support of the college dramatic groups and faculty members the committee hope to establish a permanent society for the coordination of university dramatic work.

In the absence of Mr. Vincent Massey in London Mr. Eric Haldenby took over the Chairmanship of the Board of Syndics.

VISITORS

Among visitors to Hart House during the past year may be named Mr. W. M. Goodenough (Barclays Bank), Archbishop J. C. McGuigan, the Dean of Canterbury, Major-General Andrew McNaughton, Mr. E. Salter Davies and a group of prominent directors of education from Great Britain, Mr. Paul Robeson, Mr. Carl Milles (the famous sculptor), Miss Ruth Draper, Sir Arthur Willert, Mr. Christopher Hollis, Canon Leonard Hodgson, Mr. Philip Chester, Mr. Allan Wade, Professor Ralph Fowler, the Hon. Ian Mackenzie, the Hon. C. G. Power, Mr. J. A. C. Osborne (Bank of England) and Dr. Raymond Priestley (Vice-Chancellor of the University of Melbourne).

COMMITTEES

On his retirement from the University this year Professor Michael Mackenzie has relinquished the Chairmanship of the Finance Committee of Hart House, a position he has occupied for sixteen years. During this important

formative period Professor Mackenzie has not only put at the disposal of Hart House his wide experience and sound judgment as an expert in finance and administration but has interested himself in every effort Hart House has made to be of service to its members and to the University as a whole. His loss will be severely felt but happily his retirement from the Finance Committee does not mean his severance from the life of Hart House with which it is hoped he will long continue to be associated. Dr. V. E. Henderson has consented to succeed Professor Mackenzie as Chairman and Hart House is fortunate in securing the services of one who has been for so many years closely connected with its administration and to whom it already owes so much. Professor George Glazebrook has also retired this year from the Chairmanship of the Hall Committee and Hart House is deeply grateful to him for the long hours and good judgment he has given to the affairs of the Great Hall during the past six years. Not only the permanent staff but the undergraduates as a whole are deeply sensible of the debt they owe to all senior members, both faculty and graduate, who at considerable sacrifice devote much time and thought to the various committees of the House.

(20) REPORT OF THE DIRECTOR OF THE CONNAUGHT LABORATORIES

(*J. G. FitzGerald, M.D., LL.D.*)

This is the twenty-second annual report of the Director of the Connaught Laboratories and consists of a survey of changes, progress and advancement during 1935-1936 in research, public service and collaboration with other organisations and agencies.

The Director of the Laboratories is the executive officer of the Committee of the Governors which is responsible to the University for the formulation of policies and general conduct of the Connaught Laboratories. The Chairman of the Committee from 1915 to 1935 was Colonel Sir Albert E. Gooderham, whose death in April of last year is recalled with deep regret. To fill the vacancy thus created, the Hon. and Rev. H. J. Cody, President of the University, was appointed by the Board. T. A. Russell, Esq., LL.D., Vice-Chairman of the Committee who acted as Chairman temporarily after the death of Sir Albert Gooderham, continues as Vice-Chairman, and His Honour Dr. Herbert A. Bruce, Lieutenant-Governor of the Province of Ontario, was made a member of the Committee in the place and stead of Sir Albert Gooderham. Other members of the Committee at present are Mr. F. Gordon Osler and Mr. Balmer Neilly.

The functions of the Laboratories are research in the domain of preventive medicine and the pursuance of medical public-service. Within the framework of this responsibility the Director has the collaboration of three associate and two assistant directors and a comptroller. The associate directors are immediately responsible for and have supervision of members of the staff in the sections of filterable viruses, bacteriology and immunology generally, and physiology and biochemistry. One assistant director has oversight of undertakings in chemistry in relation to immunology, as well as the production of diphtheria prophylactics. The other assistant director is in charge of the farm section of the Laboratories. The comptroller is responsible to the director for business administration, sales, services and liaison with the members of the scientific staff both those who are responsible for routine production and with those concerned solely with investigation and research. Since director, associate and assistant directors are also members of the academic staff of the University, teaching is a major responsibility. The newly established Western Division is in charge of a research member who is also an associate professor in the University of British Columbia and director of the Laboratories of the Provincial Board of Health of that province.

Primarily Connaught Laboratories serve the Dominion of Canada. In the distribution of biological products, however, their constituency is much more extensive. The list of countries included will be found elsewhere in this report where production and distribution are dealt with in greater detail. Ideally, future developments of Connaught Laboratories should be so planned that there may be, at least in this Dominion, a certain measure of decentralisation. It is suggested, in other words, that research and production should be carried on not only in this University but also in others with which collaborative arrangements may be made. Reference to such a development in the University of British Columbia received preliminary notice last year. It is a distinct pleasure at this time to report that the organisation of the Western Division has not only been wholly justified during its brief period of existence but is worthy of immediate expansion and extension. Such must be provided for, indeed, in the immediate future, if a quite unique opportunity in the Province of British Columbia is to be fully embraced. In the years to come Eastern Canada as well must receive appropriate consideration. If before the close of a quarter of century of service to the people of this country Connaught Laboratories, from its centre and divisions, reaches from the Atlantic to the Pacific, a fine foundation will have been laid. Growth in numbers of staff and increase in scientific productivity as well as expanding routine production, while doubtless desirable objectives, will however not suffice as substitutes for leadership in the domain of investigation and the extension of the boundaries of natural knowledge. Those objectives must always be kept clearly in view as the primary purposes of the organisation now and in the years to come.

Specific preventive medicine or applied immunology is concerned with strengthening the forces of resistance of the individual in order that he may the better ward off the attacks of the causative agents of communicable diseases. This is one of the major fields of public health. In consequence, the campaigns directed against the ravages of diphtheria, scarlet fever, whooping cough, pneumonia, meningitis, smallpox, etc., have been waged. That there are other even more powerful, more ubiquitous and, upon occasion, vastly more devastating foes, has long been realised. Among such may be mentioned influenza and the common cold. Progress in the elucidation of knowledge respecting these enemies of mankind is being made. Plans have been developed in these Laboratories to provide staff and facilities for energetic prosecution of research into the etiology and specific prevention of influenza and the common cold. To participate in this activity Dr. Ronald Hare, at present a whole-time worker in the service of the Medical Research Council of Great Britain and detailed for duty at the Bernhard Baron Research Unit at Queen Charlotte's Hospital, London, will become a member of the staff of these Laboratories. Dr. Hare has made important contributions to knowledge in the field of bacteriology and will be warmly welcomed. Dr. Geoffrey Rake of the scientific staff of the Rockefeller Institute for Medical Research, a graduate of the University of London (Guy's Hospital Medical School), well known for his work, most recently, on meningococcic meningitis and experimental pneumonia, will, it is a pleasure to report, also come this year to Connaught Laboratories as a research associate. Dr. Hare will, it is anticipated, work in the University and Dr. Rake in the farm section of the Laboratories.

Reference, more specific and detailed, to the investigations conducted in various divisions of the Laboratories, will now be made. In the section of filterable viruses, epidemiology and medical statistics, under the direction of Professor R. D. Defries, further satisfactory progress has been made. Certain general lines of enquiry have been followed as in previous years. Considering first the virus work, the studies have been concerned primarily with those of rabies and vaccinia. These two are responsible for hydrophobia or rabies, a disease still very prevalent in many parts of the world, afflicting both man and lower animals, and smallpox, a morbid condition of which human beings only

are the victims. As disease entities both have long been known. Until very recently nothing was known as to their etiology, even less as to how they were spread and perpetuated themselves, but curiously enough a great deal of knowledge of a practical character is available as to their specific prevention. For that knowledge we are indebted chiefly to Edward Jenner and to Pasteur. Precise and exact information, however, as to the mechanism both of infection and immunity has been lacking. Dr. James Craigie and Dr. F. O. Wishart have carried further their enquiries into serological and immunological aspects of vaccinia and variola virus infections in monkeys and rabbits chiefly. The element in these viruses which stimulates the appearance of antibodies, protective and other, is exceedingly complex. The antigens are almost certainly multiple and one of these, the so-called LS antigen which predominates in the *in vitro* reactions, has been more carefully defined. It has been found to consist of heat labile and heat resistant elements. Each of these is capable of producing antibodies upon injection. Methods for preparing pure L or pure S antisera have been developed. The soluble precipitable substances of both variola and vaccinia have been shown to be the same LS antigen. The substances in immune sera which neutralise these two antigenic elements do so, apparently, through two separate and distinct reactions because of the presence of two neutralising antibodies. Additional antigens are apparently present in these viruses and preliminary evidence suggests that they are apparently restricted to infective elementary antibodies. These antigens are being studied further. An improved technique for the variola complement fixation reaction has also been evolved by Dr. Craigie and Dr. Wishart. Dr. Defries has continued his work of exploring the possibilities of assaying the protective value of anti-rabic vaccines. White mice have been used for the purpose. A strain of rabies virus carried for years in rabbits has shown enhanced pathogenicity in mice when injected intramuscularly. Both mouse protection tests and virus neutralisation activities of immune sera have been resorted to in the assay of the relative prophylactic values of a number of anti-rabic vaccines.

Utilising cultures obtained by Dr. Kenneth F. Brandon in field studies of outbreaks of enteric infections, Dr. Craigie and Dr. Brandon have obtained bacteriophages for B. typhosus. One of them has been found to have a specific affinity for the V agglutinogen which is present only in the V form or phase of that species. More than 450 freshly isolated strains of B. typhosus have been examined and all were found to be V forms with the exception of a few infected with V bacteriophage. Antigenic degradation of the V form of the micro-organism is induced by the phage similar to that which occurs after cultivation *in vitro* on laboratory media. These observations have immediate practical application in a laboratory method for rapid identification of B. typhosus from human cases or carriers and also to satisfy the requirements in the selection of pure V forms of B. typhosus used in the preparation of homologous bacterial vaccines.

Dr. Brandon has undertaken four epidemiological field studies in conjunction with officers of the Provincial Bureau of Health of Quebec and of the Department of Health, Ontario, an excellent illustration of a function to which reference has already been made, namely collaboration with other organisations, in these instances with the two largest provincial health departments. The epidemic in the first instance was one of enteric fever in a general hospital in Montreal. This was found to be due to B. paratyphosus A. It is of especial interest because this is the first occasion upon which that species of micro-organism has been so incriminated. An outbreak of epidemic jaundice in a rural community in Ontario was also explored. Useful information respecting mode of transmission and the period of incubation of the disease was obtained. A very unusual and puzzling outbreak in an Ontario residential institution was studied by Dr. Brandon in which fourteen cases of erythema nodosum were found. All had been exposed to an open case of tuberculosis. All of them, too, gave strongly

positive reactions to intracutaneous injections of tuberculin. Careful clinical, pathological, radiological as well as epidemiological enquiry made it appear that this was an epidemic of the childhood or primary type of tuberculosis. One of the individuals involved who was found to be negative to tuberculin one month before, became tuberculin positive after suffering an attack of erythema nodosum. Another enteric outbreak in Ontario also investigated by Dr. Brandon was found to be due to B. paratyphosus B. Sixteen persons were infected by drinking polluted water from a well while attending an exhibition in the western part of the province. Dr. Brandon in conjunction with members of the Health Department, Brantford, Ontario, investigated the Schick test reaction of a group of children who several years previously had been vaccinated against diphtheria. With Dr. D. T. Fraser a study of Schick test toxins distributed by various manufacturers was completed and important observations made upon them.

Epidemiological and statistical investigations have been carried on also by Dr. N. E. McKinnon and Dr. Mary Ross. The results which have followed the large-scale employment of toxoid during a period of eight years has been continued by the inclusion of 1934 results and the compilation of results for the entire period. Dr. Ross has also analysed the records of a series of more than 5000 Schick test results. These were made available through the courtesy of Dr. Grant Fleming of McGill University, and represented the results obtained in immunisation clinics in Montreal.

Dr. Ross and Dr. A. H. Sellers in a study of mortality from cardio-vascular-renal diseases in Ontario for the period 1909-1934 have made excellent progress and preliminary results have already been presented. Dr. Ross and Dr. Brandon have made a statistical investigation of measles with especial reference to duration of illness and complications. Dr. Sellers has, himself, and in collaboration with Dr. J. T. Phair of the Department of Health, Ontario, made further progress in enquiries into the causes of maternal mortality; and with Dr. Ansley has studied the causes of foetal deaths. Other statistical investigations by Dr. Sellers have had to do with mortality from diabetes in the Province of Ontario; deaths from accidental causes; and compilation of essential facts relating to pernicious anaemia in Canada generally and in the Province of Ontario.

In the section of bacteriology and immunology under the direction of Professor Donald Fraser a varied and important programme of investigation and research has been carried on. Dr. Fraser has extended his own investigations of the amount and distribution of antitoxin produced in a group of children in response to the injection of diphtheria toxoid. Titrations of antitoxin have been completed at intervals of three, six and nine months. This enquiry has already elicited the important fact that in a group of 244 children given three doses of toxoid only one did not respond with a measurable amount of antitoxin. It has been learned also that the antitoxin level drops gradually from the third month onward. The duration of protection will also be ascertained. This study has been, because of its comprehensive character, exceedingly laborious and time-consuming. When completed, however, it should establish for the first time in human beings a suitable standard or criterion for ascertaining the efficacy of diphtheria antigens. Dr. Alan E. Young and Miss Halpern have assisted Dr. Fraser in this very important work. With Dr. Young and Dr. Mary Ross, Dr. Fraser has been exploring the question of the duration of artificially acquired diphtheria immunity as measured by the Schick test in a large group of school children. It has been determined that from 15 to 20 per cent of such children lose their antitoxic immunity in from four to five years. If they are given one extra dose of toxoid, however, nearly 99 per cent will once again become immune. Dr. Fraser's pioneer and very significant studies of the comparative response in children to three doses of toxoid and one dose of alum toxoid have been extended to two years after immunisation. The numbers are of necessity limited but the results are striking and entirely consistent with those published last year.

A study of maternally transmitted diphtheria antitoxin has been resumed. A group of children given two doses of alum precipitated diphtheria toxoid dissolved in tartrate solution are having antitoxin assays made after an interval of one year.

In collaboration with Dr. Moffat of the Department of Public Health, Toronto, and Dr. Grant Fleming of McGill University, a diphtheria carrier survey is being made. Thus far the carrier rate in both cities has been found to be surprisingly low. Estimations of diphtheria antitoxin content of the blood of such carriers is also being made. Other studies of antitoxin content of persons under observation for many years past are being continued. Occult diphtheria immunity appears to be more durable than that artificially acquired. With Dr. Martel of Amos, P.Q., the antitoxin response to two doses of high Lf toxoid is being followed. The study being carried on at Western Reserve University, Cleveland, with Dr. J. A. Doull, continues.

Dr. M. H. Brown with Miss E. A. Anderson has made a careful study of the significance of the presence of B. alkalescens in the intestinal flora of 157 persons. They found that this species of micro-organism occurs in a great variety of gastro-intestinal conditions and is essentially non-pathogenic. Taxonomically B. alkalescens is related to the species of bacteria in the dysentery group. Studies of cases of infectious diarrhoea made by Dr. Brown and Miss Anderson have revealed the presence of B. dispar and the absence of all other significant species suggests that this micro-organism may play an etiological rôle. Studies of the antigenic efficacy of typhoid vaccines have been made by Dr. Brown. He has investigated the prophylactic value in white mice of such vaccines when made from carefully selected strains of B. typhosus whose antigenic integrity had been maintained; in other words, those consisting entirely of "V" forms of the micro-organism. With such, the bactericidal power, phagocytic index and agglutinative titre of the blood of individuals, carefully selected, is being made. Two groups, normal and vaccinated, are to be studied and compared. The keeping properties of typhoid vaccine and the specificity of typhoid-paratyphoid vaccine have also been re-examined by Dr. Brown who has found a remarkable specificity in the response in mice to injection of these vaccines made from closely related species. An examination of the results of specific serum therapy in lobar pneumonia at Toronto Western Hospital has been conducted by Dr. Brown in association with Dr. George Anglin. Forty-three patients with Type I pneumococcus infections given serum had a case-fatality rate of 23 per cent. In twenty-four cases of the same type not serum treated 41 per cent died. Fifteen Type II cases who were given serum all recovered. Dr. Brown and Miss Anderson have also continued their studies of pneumococci isolated from patients in the Hospital for Sick Children. To the present 500 strains have been obtained. The Neufeld method of sputum typing is now being employed to the exclusion of all others. With Dr. Caulfeild Dr. Brown has investigated the sensitising properties of alum precipitated ragweed pollen. This will be referred to in greater detail elsewhere. Negative results have been obtained in an investigation of the effect of cortin on hemolysin production in rabbits. Finally, Dr. Brown has determined the effect of pH upon the keeping qualities of diluted tuberculin.

Dr. J. S. Kitching who has been given responsibility for the staphylococcus work in these Laboratories, has made a number of important and interesting additions to existing knowledge. Tests of toxigenic capacity of more than 60 recently isolated strains of staphylococci have given confirmatory evidence of the preliminary finding, namely that the ability to develop toxin, *in vitro*, measured by hemolysin production and combining power, does not correspond with severity of infection. The production of single-strain toxoids for human use has been continued and has yielded satisfactory results. One strain especially has occasioned very few untoward local or general reactions. The assessment of antigenic capacity of staphylococcus toxoids in human beings has been continued. The appearance of "rough" variants in strains of staphylococci cultured

in certain media has been noted. Even dried cultures have in certain instances manifested this tendency to antigenic degradation.

With Dr. Kitching, Dr. Leone Farrell has conducted an enquiry into the effect of variation in the concentration of formaldehyde upon the rate of detoxification of staphylococcus toxin, the effect on combining power and upon antigenicity. Dr. Farrell has developed a method of assessing the amount of free formaldehyde in toxoids. A very careful and thorough investigation of staphylococcal immunity in rabbits and mice has been made by Dr. Farrell and Dr. Kitching. Active immunisation of these animals with staphylococcus toxoid enhanced resistance against lethal effect of staphylococci and staphylotoxin introduced parenterally, also against the dernonecrotic action of staphylotoxin. Formalinised staphylococcus vaccine produced little or no antitoxin and no increase in resistance to lethal effect in rabbits of this micro-organism or its toxin. Serum of rabbits treated with staphylococcus vaccines did not confer passive immunity against staphylococci in rabbits or mice. Staphylococcus antitoxin was found to be specific in conferring passive immunity against lethal effect of staphylococci and staphylotoxin and the degree of protection conferred was proportional to the amount of antitoxin given. A series of horses are being immunised with four different staphylococcus antigens. Dr. Kitching has investigated the staphylococcus antitoxin titre of more than 800 persons. These have been obtained, largely, from individuals suffering from acute and chronic staphylococcus infections. Then too, Dr. Kitching has followed the increase in natural antitoxic immunity occurring in patients suffering from acute osteomyelitis. In 350 cases of varying ages Dr. Kitching has endeavoured to ascertain the average staphylococcus antitoxin content of the blood. There did not appear to be significant differences in concentration in persons in various age groups. The staphylococcus antitoxin of maternal and cord blood has been determined. Dr. Kitching has also investigated the antitoxin of various groups of human beings and of several species of animals. Dr. Farrell has studied the stability and antigenicity of diluted staphylococcus toxoid. Comparative immunising value of unmodified, alum precipitated and alum tartrate staphylococcus toxoid is being investigated by Dr. Farrell, who is also engaged in a chemical study of various fractions of staphylococcus toxin.

Dr. P. A. T. Sneath has continued his studies of tetanus toxoid in human beings and in guinea-pigs. Very interesting results have been obtained and it has been established that an exceedingly useful new antigen and weapon against tetanus has been made available. Dr. Sneath also followed the variations in tetanus antitoxin content of the blood of persons previously given toxoid.

Another very useful service rendered by Connaught Laboratories may here be referred to since Dr. Sneath is responsible for its conduct. For several years past an immunisation clinic established in the Hygiene Building has been available to students in the University. There the Schick test, Dick test and tuberculin test have been undertaken. Students have also been given the following antigens: diphtheria toxoid (alum precipitated and unmodified), scarlet fever toxin (formalinised and unmodified), scarlet fever antitoxin, staphylococcus toxoid, tetanus toxoid, typhoid and T.A.B. vaccines, vaccine virus, etc. The number of persons attending the clinic increased from 275 in 1934-35 to 741 in 1935-36. In addition, students in the D.P.H. and Public Health Nursing classes attended on various occasions for immunisations, etc.

Dr. Frieda Fraser and Dr. Helen Plummer have collaborated in the study of various streptococcus problems. As for many years past they have been especially concerned with the study of strains of streptococci isolated from cases of scarlet fever, puerperal fever, septic sore throat, generalised infection, etc. It has been ascertained that those strains of streptococci giving rise to human disease belong chiefly to the so-called precipitin Group A type of Lancefield. For purposes of identification of toxigenic strains from both scarlatinal and non-scarlatinal sources this fact is of major importance. There was found to be a

significantly smaller portion of strains of streptococci from the throats of normal persons capable of elaborating toxin. Among 215 strains of streptococci tested by Dr. Plummer and Dr. Fraser, the toxin elaborated by all of them could be neutralised by two antitoxins, no less than 85 per cent by antitoxin resulting from the injection of horses with toxin produced by the strain of streptococcus known as N.Y. 5; 8 per cent by the "Smith" strain; and 3 per cent by a mixture of the two. In deciding upon the strains to be employed in antitoxin production these facts are of material value. Dr. Plummer has explored the streptococcus antitoxin content of human blood of Canadian and of tropical origin. A comparison of the content of antitoxin in maternal and cord blood has also been made by Dr. Plummer. Doctors Frieda Fraser, Plummer and L. N. Silverthorne have estimated the antitoxin content of the blood of patients suffering from streptococcal infections and receiving serum. A study of the antitoxin content of persons who were found to be Dick positive before, during and after immunisation, and of pupil nurses at the inception and close of training and before and after immunisation, has been made by Dr. Plummer and Dr. Fraser. A serological and cultural study of more than 100 strains of streptococci from the points of view of pigment production in relation to classification by precipitin groups and of classification according to precipitin types in Group "B" has engaged Dr. Plummer's attention. Dr. Fraser has studied the fibrinolytic titres of strains of streptococci in relation to the severity of clinical infections (in association with Dr. R. R. Madison of Stanford University). Dr. Fraser, Dr. Plummer and Dr. Alan Young have cooperated in an epidemiological study of strains of streptococci isolated from children at the Preventorium. Some were from cases of scarlet fever, others from contacts both among staff and patients.

Dr. Caulfeild with Dr. M. H. Brown and Dr. E. T. Waters of the department of physiology has made important observations in studies in allergy. Guinea-pigs have been sensitised to ragweed pollen extracts with great regularity when the extracts were submitted to preliminary precipitation by potassium alum. Brief reference has already been made to this exceedingly interesting and significant advance made by Dr. Caulfeild, Dr. Brown and Dr. Waters. The study of the influence of ragweed carbohydrate on the reaction (itself a matter of moment) has been reopened with most promising and interesting preliminary results. The serum content of skin sensitising antibody (reagin) in the blood of a number of persons sensitive to ragweed (who constitute a very large portion of so-called "hay-fever" patients) has been estimated. Thus far the results have not indicated that those persons who have a high content of sensitising antibody in the blood are especially likely to be free from symptoms of hay fever. Guinea-pigs have been utilised in the further study of skin sensitising antibody. Serum obtained from a highly sensitive guinea-pig has, by means of the Prausnitz-Küster procedure, been shown to possess a skin sensitising antibody analogous to that demonstrable in the serum of a sensitive human being. Studies of the behaviour of antigen and antibody injected intradermally in various proportions have been made and antibody activity under appropriate conditions has been observed to disappear. Chemical studies of various ragweed fractions have been initiated and the early clinical findings employing different fractions have yielded most intriguing results.

Dr. L. N. Silverthorne whose services are devoted to the Hospital for Sick Children as well as to Connaught Laboratories has made a number of exceedingly valuable contributions during the year. The bactericidal power of human and guinea-pig blood upon meningococci has been further investigated. In conjunction with Dr. Donald Fraser quantitative differences in the bactericidal power of blood from different individuals have been demonstrated. A considerable number of normal healthy persons examined over a period of years have been found to harbour meningococci in the naso-pharynx. Among 63 such persons from whom 1227 naso-pharyngeal swabs with secretion were taken and examined at regular intervals for two years, 19 per cent were found to contain

meningococci. The blood of these individuals was examined to determine its bactericidal power. The strains of meningococci isolated were tested to demonstrate the invasive power of the blood and with the aid of the "mouse-mucin" test could be classified as "virulent" or "avirulent". Carriers of the meningococcus possess bactericidal substance in the blood whether the strains which they harbour in the naso-pharynx are "virulent" or "avirulent". Blood from carriers has been found to possess bactericidal properties against some "virulent" cerebro-spinal fluid strains of meningococci. These observations are of great theoretical and practical importance. Dr. Silverthorne has also continued his studies of other phases of the problem of meningococcus meningitis. Active immunisation against whooping cough has occupied the attention of Dr. Silverthorne and Dr. Fraser. A study of influenzal meningitis and a novel method of serum treatment of the disease has been developed by Dr. Silverthorne.

Most profitable and fruitful collaboration between members of the staff of Connaught Laboratories and of the Hospital for Sick Children, the Department of Public Health, Toronto, Riverdale Isolation Hospital, the Department of Health, Ontario, Toronto General Hospital, McGill University and various other organisations and institutions, has made possible much of the work in the section of bacteriology and immunology under the direction of Dr. Donald Fraser. This cooperation is deeply appreciated and acknowledged with gratitude. No less than fourteen scientific communications were published during the year by members of this section of the Laboratories.

The section of physiology and biochemistry has again been in charge of Professor C. H. Best. Exceedingly important investigations have been conducted during the year by Dr. Best and his co-workers and a number of communications were presented both at the International Physiological Congress at Leningrad in August 1935 and at the meetings of societies in the American Federation for Experimental Biology (including the American Physiological Society, the American Biochemical Society and others) in Washington in March 1936. Dr. Best and Miss Ridout have presented the further results of their studies on choline and liver fat in a series of papers. The importance of choline in human and animal metabolism is receiving ever-increasing recognition. Dr. E. W. McHenry has shown that the addition of vitamin B_1 to a low choline diet fed to young rats brings about a marked increase in the fat content of the livers. He has also investigated the sparing action of vitamin B_1 on fats. Dr. McHenry has studied, too, the time required for the production of fatty livers and the relation of the fat content of the diet to the deposition of fat in the liver. Dr. Best with Mr. J. Campbell in studies of the relation of the anterior pituitary gland to fat metabolism has endeavoured to establish a quantitative test for the active material. Rats, mice, guinea-pigs and chickens have all been investigated and the reaction in mice gives promise of providing a rapid, useful test. The hormone has been investigated in elucidating the effect of extracts on ketosis, liver fat, body fat and kidney fat. Definite differences between the liver fat response of male and female animals have been shown to exist. Dr. D. L. MacLean has made histological studies on fat absorption with and without choline in the diet and in various other conditions. With Dr. McHenry, Miss Gavin has investigated several methods of animal assay of liver extracts. Dr. R. F. Farquharson and Dr. J. A. Dauphinee of the departments of medicine and therapeutics have given most helpful cooperation in this work and the thanks and appreciation of Connaught Laboratories are hereby extended to them and to Professor Duncan Graham, physician-in-chief to the Toronto General Hospital, for courtesies shown. Dr. McHenry and Dr. R. A. Cleghorn of the department of medicine have collaborated in further studies of cortin. Glycine has been supplied to the Toronto General Hospital for the study of its effect in myasthenia gravis. Dr. McHenry has prepared a testicular powder for study in the treatment of prostatic conditions by Dr. Robin Pearse and members of his staff at the Toronto General Hospital. Under Dr. McHenry, Mr. Reedman has investigated

the ascorbic acid content of blood and urine in patients at the Hospital for Sick Children. Other studies of vitamin C have also been made. Dr. MacLean has studied various problems in lighting and ventilation; with Dr. H. H. Burnham he has observed the effect of various ventilatory conditions on the nasal mucosa; and with Dr. H. M. Barrett he has investigated the toxic effects of chemicals used in the cleaning industry.

Dr. D. A. Scott and his associate Dr. A. M. Fisher, in the course of their work directed to obtaining an insulin compound which would manifest a prolonged hypoglycaemic effect, have made very important advances. These workers had already shown that insulin solutions to which small amounts of zinc were added, retarded the onset of hypoglycaemia and prolonged insulin action. Hagedorn and his co-workers in Copenhagen subsequently demonstrated that suspensions of insulin and protamine produced a sustained lowering of blood sugar in diabetic patients. Various protamine preparations were made by Dr. Fisher and investigated by Dr. Scott and Dr. Fisher. Satisfactory preparations of protamine insulin have been made for clinical trials. Dr. Scott, knowing that insulin readily combined with zinc and that this metal forms complex salts with amines, postulated that zinc or some other metal might be a factor in the formation of suitable protamine insulin suspensions. Employing protamine and insulin of low ash content, only a slight prolongation of insulin action was observed. If, however, these same mixtures were taken and a trace of zinc added to them, they then produced, when injected, very prolonged hypoglycaemia. Spermine isolated from beef pancreas mixed with insulin containing a trace of zinc prolonged the hypoglycaemic action of insulin in dogs. These results of Dr. Scott and Dr. Fisher mark another important advance in insulin therapy and shed further light on the mechanism of insulin action. To Dr. W. A. Clemens and Dr. Mottley of the Pacific Biological Station at Nanaimo, B.C., warm thanks are extended for assistance in obtaining supplies of salmon milt from which protamine was prepared.

Dr. A. Charles and Dr. Scott have devised methods for the further purification of heparin. Dr. Barrett has investigated the toxicity of trichlorethylene and carbon tetrachloride. He has also continued his determinations of atmospheric pollution. Dr. Barrett has also devised a most ingenious and delicate apparatus for the preparation and analysis of deuterium-containing fats. Mr. K. K. Kay has completed and standardised in absolute energy units a spectroradiometer for the study of the absolute spectral intensity of any radiant energy source. By this means the antirachitic potency of such sources may be evaluated. Mr. Kay has also studied by means of spectroradiometer the transmission of smoky atmospheres for ultra-violet radiation. The reduction of ultra-violet radiation of antirachitic potency by smoky atmospheres has been determined both by biological assay and by the spectroradiometer. The results of the biological assay have been obtained in absolute units and are therefore universally comparable. This is a signal advance. Eighteen papers have been published during the year by Dr. Best and his colleagues.

Professor P. J. Moloney, Dr. E. M. Taylor, Mr. M. D. Orr and Dr. M. D. Smith in the section of chemistry in relation to immunology have made valuable contributions to both theoretical and routine activities of the Laboratories during the current year. Dr. Moloney and Dr. Taylor with Dr. K. F. Brandon have investigated very thoroughly fourteen Schick test toxins, determining combining power and toxicity in guinea-pigs. The criteria were those of the Permanent Commission on Biological Standardisation of the Health Organisation of the League of Nations. Employing the same toxins, Dr. Brandon has carried out a large series of tests in human beings. The results obtained in humans and guinea-pigs suggest that the present international standard for the Schick test might be improved by a change in toxicity and combining power requirements. Experiments have been undertaken to determine suitable conditions under which stable solutions of fresh toxin mixed with toxoid could be prepared, of which

the level of toxicity and combining power could be fixed at will. Further work on toxin broth is being carried on to ascertain, if possible, whether variation in toxin production from hog's stomach autolysate is due to variations in the culture employed or in the constituents of the medium. Complete detoxification of toxin produced in this medium proceeds very slowly in the presence of formalin. The time required may be lessened by the dilution of the toxin or dilution of the broth prior to seeding. Dr. M. D. Smith has carefully studied a number of analytical methods with a view to improving accuracy and technique. Dr. Smith has also continued her study of the heat labile detoxifying action of bile on diphtheria toxin. Mr. M. D. Orr has investigated the stability of diphtheria toxoid in the presence of a variety of physical and chemical agents. Toxoid was found to be relatively stable in the presence of a high concentration of acid. This fact has made it feasible to further purify toxoid. Various toxoid complexes have been prepared and studied by Mr. Orr.

In the farm section under Professor N. E. McKinnon research activities have been prosecuted with great vigour and with most gratifying results. Investigation of various problems of fundamental interest have been carried to completion during the year. Dr. Donald Cameron has enquired into the influence of certain elements of the diet on immunity in guinea-pigs. He has shown that the antitoxin response following injection of diphtheria toxoid is definitely depressed in animals in a state of inanition due to vitamin C deficiency. Dr. Charles Siebenmann has continued his studies of the refractometric and chemical changes in culture medium during the growth of C. diphtheriae, with especial reference to physical conditions influencing toxin production. Observations on the relationship of toxin concentration to growth, determined gravimetrically, of protein to growth and to toxin concentration, of Lf units to toxicity, have been classified and published, as has a paper on the influence of aeration and diffusion on toxin formation. Dr. Siebenmann has also made exceedingly interesting observations on the detection of H_2S in various bacterial cultures by means of silver foil. He has explored, too, the influence of maltose and glucose on H_2S production. Using the Moloney-Taylor medium quite fundamental work has been done in this field by Dr. Siebenmann. He has extended also his study of proteins in sera by refractometric methods. The technique developed is being applied also to observations of the plasma of horses undergoing immunisation. Other problems engaging Dr. Siebenmann's attention are methods and routes of immunisation of horses in the production of tetanus antitoxin; and the isolation of fractions of C. diphtheriae. The separation of a carbohydrate fraction has been completed.

Dr. R. C. French has studied the distribution of the various antitoxins in their respective plasmas. Methods for the further purification of antitoxin have also been examined. An investigation of the chemical changes in the blood of horses undergoing immunisation has also been undertaken by Dr. French. He has enquired into the antitoxin response to antigens in varying amounts, large and small, primary and secondary to similar doses in large and small volume. This has been done in horses and guinea-pigs. The addition of adjuvants such as $CaCl_2$ to antigens has received further consideration. Dr. Kerslake has studied the blood and urine of normal horses and of those under treatment. He has also continued his survey of parasitic infestation in horses. Dr. R. D. Heard has been engaged in studies of oestrin and related hormones. He has investigated also the employment of the dietary anoestrus mature rat as a test object for the oestruo-inducing gonadotropic hormone of pregnancy urine. Mr. Gunn has studied the effect of various diets on growth and survival of guinea-pigs, rabbits, mice and rats. The relationship of diet to fertility, the normal oestrus cycles and the effect of diet on oestrus cycles in these species has been explored. Mr. Gunn, too, has continued and extended his work on vitamin C content of diets in guinea-pigs in relation to character of the intestinal flora. He is attempting to develop by selective breeding a strain of guinea-pigs

with uniformly high tolerance to vitamin C inadequacy. Mr. Gunn has also observed an interesting mutation among the animals in the albino rat colony. He has made a survey of flies and the fly problem at the University Farm. A study has been made of the normal bacterial flora of animals in the various colonies and of the species of micro-organisms associated with or responsible for sickness or death among these animals.

The very extensive series of investigations herein briefly referred to serves to indicate the extent to which the staff of Connaught Laboratories in both University and Farm Sections have devoted their efforts to the promotion of preventive medicine through enquiry and research.

The recent additions and improvements in the Farm Section have been completed. The Main Building has been altered and rearranged and is now occupied by administrative offices, research laboratories and living quarters. Number I Unit, formerly the west stable, has been converted into a fine laboratory building where antigen production, washing, sterilisation and preparation of glassware is carried on. The operating unit has been remodelled and now serves as a concentration unit. Quarters for vaccine virus production, quite separated from all other activities, have been provided in Unit No. II, formerly the centre stable, the upper floor of which is now utilised for housing the mouse and rat colonies. The north end of this building houses animals on test and a portion of the south end has been developed as a store room. No. III Unit, formerly the east stable, provides for the guinea-pig colony but at the south end on the second floor, a splendid biochemical laboratory has been created. On the first floor directly beneath the biochemical laboratory, quarters for heparin production have been found. The Volatile Solvents Building for safe fractionation and recovery of volatile solvents such as ether, acetone, toluol, etc., has been completed. Two new brick stables, each with a capacity for 25 horses have been built. The water supply plant has been enlarged to provide for the sedimentation, chlorination, filtration and pumping of 50 gallons of water per minute from the river. Additions to building, sedimentation tanks and pipe line, all had to be made. The daily requirements at present from this water supply amount to 6000 gallons. The entire project thus briefly outlined has been completed at a cost of nearly $105,000. This includes, of course, the purchase of five additional acres of land secured last year. The Farm now consists of 75 acres of land.

Plasma and serum production on a large scale has been carried on as usual at the Farm. Toxoid production has been greater than ever. Vaccine virus and rabies virus (veterinary) for use in Trinidad have been produced in large quantities. Nearly 6000 litres of media were prepared during the year and in less than three months there were recovered in the new Volatile Solvents Building no less than 540 gallons of toluol, acetone, alcohol, benzene and ether. Laboratory animals were supplied from the farm colonies, rabbits, guinea-pigs, rats and mice to the number of more than 34,000. The guinea-pig breeding colony is to be built up to a level of 5,000 animals. The Farm Section of the Laboratories is now established and equipped as are few serum institutes elsewhere in the world. For research, demonstration and the production of biological products facilities have been made available which are unexcelled.

The Comptroller's Section has been extremely active during the year. The total volume of distribution was greater than in any like preceding period. During the last four months of the year three new products were added to those previously distributed. The list now includes:—diphtheria antitoxin, tetanus antitoxin, perfringens antitoxin, scarlet fever antitoxin, staphylococcus antitoxin, anti-meningococcus serum, concentrated anti-pneumococcus sera, anti-anthrax serum, diphtheria toxoid, staphylococcus toxoid, Schick-test preparations, scarlet fever toxins, typhoid vaccines, pertussis vaccine, vaccine virus, rabies vaccine, old tuberculin, pneumococcus typing-sera, heparin, liver extracts, insulin, adrenal cortical extract and epinephrine hydrochloride solutions.

During the year products of the Laboratories were sent to all provinces in the Dominion of Canada, Yukon and the North-West Territories, and exported to Bermuda, British West Indies (Leeward Islands, Windward Islands, Barbados, Trinidad and Jamaica), Chile, England, Formosa, India, Irish Free State, Japan, Newfoundland, South Africa and the United States of America.

Connaught Laboratories Fellowships in Public Health were awarded to Dr. A. R. J. Boyd and Dr. A. D. Lapp of British Columbia, to Dr. A. Gagnon, Dr. J. Paquin and Dr. J. S. Sirois of the Province of Quebec.

Many visitors from abroad have come to both University and Farm Sections of the Laboratories. This year they were from many parts of Canada, the U.S.A., the British Isles, Argentina Australia, Brazil, China, Esthonia, France, Germany, Holland, India, Japan, Mexico, Newfoundland, Norway, Peru and Switzerland. Graduate and undergraduate students in the University and members of various societies and groups visited the laboratories for demonstrations, class exercises and exhibitions.

The staff of the Laboratories on June 30, 1936, numbered 245. Ninety-four of these are in the Farm Section, five in the Western Division, Vancouver, B.C., and the remainder in the University Section. During the year 48 new full-time appointments were made and there were 14 resignations. Among them was that of Miss Alison Kent who for eleven years was in the comptroller's section of these Laboratories and whose faithful and conscientious work is acknowledged with grateful appreciation. Miss M. B. Phillips, a graduate of the University in the Faculty of Household Science, has been placed in charge of the food kitchens and cafeteria. Mr. K. K. Kay, M.A., has been appointed an assistant in the comptroller's office from July 1st, 1936.

The library in charge of Miss O. E. Somerville, assisted by Miss K. Pichler, has again rendered most valuable service to staff and students not only in Connaught Laboratories but as well to graduates and undergraduates in various faculties and colleges. The seventh volume of Connaught Laboratories Studies was published in April. There are forty-six reprints in this volume. The Studies are sent to libraries in all parts of the world. The library exchange was quite active during the year. Loans have been made to the Farm Section as usual. The total attendance in the library during the year was 6447. Miss Pichler has listed 2407 references to articles in current literature during the year. Reprints have been catalogued and arranged. Fifteen translations of articles in the literature have been made. One hundred and four current journals are received in the library and during the year 164 bound volumes and 96 books were added. Dr. A. H. W. Caulfeild, for many years chairman of the Laboratories library committee, resigned during the year. To Dr. Caulfeild warm thanks and sincere appreciation for his long-continued interest in and enthusiasm for the library are here expressed.

I wish in conclusion again to refer to Western Division of Connaught Laboratories in the University of British Columbia at Vancouver, established in October last with Dr. C. E. Dolman, research member of these Laboratories, in charge. Dr. R. J. Gibbons and three others constitute the original staff of the Division. Dr. Dolman as head of the department of bacteriology and preventive medicine of the University of British Columbia and Director of the Laboratories of the Provincial Board of Health of British Columbia is directing a unique co-operative enterprise in the field of preventive medicine. Thus far, research enterprises only have been undertaken. Routine procedures may be developed later. Excellent progress has already been made. It is evident, too, that more space must be made available at once if full advantage is to be taken of existing opportunities for useful service.

To the Chairman and members of Connaught Laboratories Committee of the Governors of the University and to members of the staff of the Laboratories the Director extends his thanks and appreciation for continued support and cooperation.

(21) STATEMENT REGARDING THE MUSEUM OF ARCHAEOLOGY

(Professor C. T. Currelly)

During the past year, the Museum has continued its steady growth in most of the departments.

The prehistoric section, which has probably now reached first place in America, has been extremely fortunate in adding another forty-six Luristan bronzes, and with them a small series of early Persian potteries. After many years' desire, we have obtained one of the 15th century B.C. Syrian sceptre-swords, and also a number of very important early Syrian axes, swords and daggers, dating approximately from the same period or a few centuries earlier. From the Trans-Jordan comes a remarkable stone axe that must have been made somewhere not far from Hungary and have been passed south in early movements. Another wanderer far from home is an exquisitely beautiful Danish flint axe found in the Polish Carpathians. The British School of Archaeology in Jerusalem presented four hundred and eighty-three flint implements from Mount Carmel. After twenty-five years of hunting, a remarkably fine Bronze Age British bit has been added to the collection.

The Egyptian department has received a very fine temple seal, probably for sealing the strong-room, and also a continuation of Sir Robert Mond's gift from the work of the Egypt Exploration Society.

Our classical side has not been so fortunate, a little Roman-British decorated leather being the only material obtained.

In metalwork, six Merovingian bronzes and some interesting pieces of French-Canadian silver were secured, the latter through the kindness of Mr. Marius Barbeau; and several pieces of domestic silver were given by Miss Jean Robertson. A marvellous Siamese bronze head of about 1400 was presented by Mr. S. Yamanaka, and another very fine one of about 1300 came to us as a gift of the Reuben Wells Leonard Bequest.

The arms and armour section had very little addition, the only outstanding piece being a beautiful Persian powder horn of carved ivory, the gift of Mr. Joseph Brummer of New York.

In furniture, two interesting French-Canadian chairs were obtained, an early Canadian overmantel was presented by Mrs. A. Williams Moore, and four French Renaissance chairs were presented by the Reuben Wells Leonard Bequest. Of general woodwork, one of the quite early French-Canadian sculptures, probably late 17th or early 18th century, a statue of St. Roch in oak, and also two fine French-Canadian carved wood candleholders, were obtained through the kindness of Mr. Barbeau. Of general sculpture, through the Leonard Bequest we received a fine stucco Madonna and Child of the Italian Renaissance.

The R. S. Williams Collection of musical instruments was further enriched by an English flute, and Mr. Alan H. Ross gave three clarinets, a band flute, and a musette.

The ceramic collection came in for some very good additions. We were able to purchase several pieces of early English ware, in which our collection is now becoming quite rich; and with the money donated last year by the Ceramic Art Club, we obtained some excellent pieces of early English porcelain from the leading pottery works. A very fine series of Mohammedan Persian potteries was also received, seventeen pieces being presented by the Reuben Wells Leonard Bequest.

In textiles, several acceptable pieces were presented: a Paisley shawl from Mr. William Debenham; a fine cashmere shawl and a velvet garment from General W. F. Swiny; a Quaker bonnet from Mr. Esli Terrill; three wooden blocks for printing Indian fabrics from Mrs. L. W. R. Bryce; a printed silk gauze shawl from Mrs. Gladstone Edwards; a dress from Mrs. Fred R. Love; another Paisley shawl from Miss Jean Robertson; and a small collection of silk brocade from Mrs. J. B. Laidlaw.

The department of printing and the book obtained a number of etchings, colour-blocks and wood-engravings; and the collection of postage stamps has been very greatly augmented, chiefly through gifts obtained for us by Mr. Paul Hahn or given by him directly.

On the East Asiatic side, four Ying-Ch'ing porcelains were obtained; a collection of clay moulds for bronze casting was given by Bishop W. C. White; Mr. S. Yamanaka presented half of a very fine Han tile and three Sung tea bowls; and a coat of embroidered gauze was given by Miss Mabel E. Tom. As an example of what it is possible to do in very hard stone, there was obtained through the Reuben Wells Leonard Bequest one of the marvellous, almost paper-thin, jade plates made for the Emperor Ch'ien Lung in the latter half of the 18th century. We also obtained through the Leonard Bequest a remarkably fine Chinese bronze statuette of about 500 A.D., a beautiful painted Japanese screen of about 1600, and a fair-sized collection of 17th and 18th century Japanese ceramics. Mrs. W. C. White also presented a hundred Japanese stencils for printing textiles.

In the department of ethnology, we have received a large collection of British Columbia jade implements and the boulders from which such implements were cut. These show all the stages in the working of a boulder, and as we also received the stone saws with which the jade was cut, we are able to illustrate, as few places ever will be able to do, this remarkable industry. Thirteen beautifully decorated vases from Central America were obtained, and a small quantity of Mexican material. A large number of gifts was received in most of the subsections. Conspicuous among them was a Libyan collection from Dr. Henry R. Maurer; a Golden Har from Sir Harry Haig; a very fine Costa Rican metate from the Rev. R. L. Brydges; some fine Samoan tapa from the Rev. G. G. Brown; a collection of Patagonian silver from the estate of Mrs. S. A. Stewart; and from Mr. L. A. Learmonth a most important series of early Eskimo material. A remarkable piece of early Indian sculpture, part of a Mexican yoke elaborately carved from porphyry, was obtained through the Reuben Wells Leonard Bequest.

The general work of case-making, cataloguing and teaching has gone on as usual.

(22) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF ZOOLOGY AND THE BIOLOGICAL MUSEUM

(*Professor J. R. Dymond*)

The most noted exhibits added during the year were specimens mounted under the Reuben Wells Leonard Bequest. Those prepared during the past year included the takin, male and female mountain sheep, buffalo calf, elk fawn, coyote, wallaby, Tasmanian devil, mink, brush wolf, and timber wolf.

The exhibition series of Canadian and foreign birds have been improved by replacing a number of old specimens by more recent mounts. A series of insects of economic value, mounted on their food plants, has also been installed.

The research collections continue to grow as a result of donations, collection, exchange and purchase. The number of specimens of the more important groups added during the past year was as follows:

Mammals	1,476
Birds	1,539
Reptiles	55
Amphibians	122
Fish	439
Insects	2,437
Crustaceans	45
Molluscs	6,303
Miscellaneous	1,319

Among the more important of the donations were:

Brennand, C. G. 1 passenger pigeon.

Coventry, Prof. A. F. 118 mammal skins and 1 snake.

Boyd, Mossom. 119 volumes Buffon's Histoire Naturelle, published 1799-1805 and 42 volumes of Jardine's Naturalists' Library.

Clarke, S. H. A pair of pronghorns, commonly called antelopes.

Merriman, Miss Ida. Diaries and other records of natural history observations of her brother, the late R. O. Merriman, made between June, 1921 and October, 1934.

National Parks Branch, Department of the Interior, Ottawa. A caribou from Jasper Park, a mule deer from Buffalo Park, Wainwright, 5 coyotes, 1 cougar, 24 mammal stomachs and 27 photographic enlargements of animals.

Pirie, Dr. Alex P. Case of 16 mounted Costa Rican birds.

Toronto Parks Department. 31 mammals, 27 birds and 2 reptiles, including Malayan Sun bear, striped hyena, alligator, 2 bear cubs, armadillo, two-toed sloth, red kangaroo and spotted hyena.

Walkinshaw, C. A. 2 Volumes, "Monograph of the Thrushes".

Waller, Sam. 21 birds, 3 mammals, 1 reptile, 6 bird nests and 59 bird eggs.

Whelan, R. V. 7 birds, 5 bird eggs, 15 mammals, 3 reptiles, 12 fishes, 49 amphibians, 775 insects, 4 leeches, 4 lots of crustaceans, 115 molluscs, 88 vials of spiders.

Fleming, J. H. 3 bird skeletons, 1 lot of molluscs, 184 mammal skins and 2 birds.

Donations were also received from the following: Ralph E. Akey, Dr. A. E. Allin, William E. Alton, Burt Armstrong, John B. Armstrong, C. E. Atwood, E. W. Bailey, James L. Baillie, Jr., Miss Joan Baillie, Gordon Bain, Miss Hettie Bain, Mrs. J. M. Baldwin, Frank Banfield, Professor E. W. Banting, Roger Barr, W. Baxter, R. Bayliss, L. H. Beamer, Garnet S. Bell, H. Bell, Mrs. B. A. Bensley, J. R. Bickerstaff, R. D. Black, Fred Bodsworth, Dr. H. M. Bowen, J. F. Brimley, Major Allan Brooks, A. W. A. Brown, E. R. Buckell, Charles Burdette, A. G. Burns, E. Burnthal, H. Cameron, A. D. Campbell, Mrs. Capon, S. Chamberlain, J. Chisholm, Dennis H. Chitty, Dr. C. H. D. Clarke, Dr. F. Arnold Clarkson, M. F. Cook, Harry O. Cooper, Charles E. Corfe, Dr. A. Cosens, Norman R. Craig, Crewe Brothers, Stuart Criddle, E. C. Cross, Dr. C. T. Currelly, Murray W. Curtis, Rupert Davids, Lt. Col. L. S. Dear, Prof. A. T. DeLury, Jack Dennis, Wm. F. Depew, Otto E. Devitt, Russell G. Dingman, Kenneth Doan, Captain T. E. Donne, Stuart C. Downing, John Edmonds, Paul F. Elson, F. Hardie Emery, Entomological Society of Ontario, Louis Epps, A. M. Fallis, Federation of Ontario Naturalists, John Freeman, K. Freeman, G. F. Fry, Harold Fulcher, Robert J. Gill, M. E. Gillespie, H. Glazbrook, Norman L. Goldthorp, Norman Gooderham, Hedley K. Gordon, Arthur S. Goss, Dr. S. Hadwen, Paul Hahn, H. Handley, Professor W. J. K. Harkness, A. T. Harper, Dr. Paul Harrington, Miss J. E. L. Hart, Dr. John L. Hart, Mrs. J. A. Harvey, Donald Hassel, Holton B. Haugh, Thomas Hayman, Mrs. H. G. Henson, Miss Higgins, C. F. Holmes, Clifford E. Hope, G. Hopping, Professor A. G. Huntsman, G. D. Hurlburt, Dr. W. Ellis Hurlburt, Dr. F. P. Ide, W. I. Irving, H. Roy Ivor, Howard B. Jackson, Allan Johnson, R. W. Johnson, J. L. Jorgensen, Alfred Kay, Charles E. Kay, J. E. Keays, W. A. Kennedy, H. H. King, Miss Fanny Korn, Mrs. Ella Kuitunen, T. B. Kurata, Dudley Land, Monroe Landon, K. H. Lang, Hon. Chief Justice F. R. Latchford, B. J. Lee, Dr. A. H. Leim, C. B. Leonard, Mrs. R. W. Leonard, Wm. J. LeRay, R. V. Lindsay, Henry A. Little Estate, Misses Littman, Charles Lloyd, Hoyes Lloyd, F. Lockhart, E. B. S. Logier, Miss Ruth E. Logier, W. H. Lunn, E. G. MacDougall, F. A. MacDougall, B. H. MacIntee, H. G. Mack,

Donald I. MacKinnon, D. MacLulich, Sr., D. A. MacLulich, Wm. C. Mansell, J. M. Marett, Rev. Donald B. Marsh, Thomas D. Masey, E. J. R. Mason, Jack May, J. M. McArthur, Dr. McCormack, Dan McCowan, J. V. McCutcheon, Robert McKay, Dr. F. W. McKee, W. W. McKinlay, Miss M. F. McLennan, Hugh McManus, Dr. G. A. McQuibban, J. C. Medcof, M. Meikle, Charles Melton, R. B. Miller, Jack Miner, Miss C. E. Mitchell, George C. Morrison, John P. Morton, Charles Mulcahy, Mrs. Ethel Rogers Mulvany, J. A. Munro, Dayton Murphy, George S. Myers, Dr. A. W. H. Needler, Knud Nielsen, George W. North, Wm. O'Neill, Ontario Dept. of Game and Fisheries, John G. Oughton, Mrs. John G. Oughton, Wm. Owen, H. M. Parrington, Mrs. T. C. Patteson, Herbert Pickering, W. E. Playter, Leslie A. Prince, Dr. A. L. Pritchard, D. L. Proctor, J. W. Rainbow, Wm. Renison, W. E. Ricker, Don Ritchie, Clifford Robb, Wallace Havelock Robb, Emerson Robertson, J. B. Roninson, Charles K. Rogers, Harold M. Rogers, H. R. Rogers, Blair Ronald, W. F. H. Rosenberg, Douglas Ross, J. B. C. Runnings, R. J. Rutter, A. Saunders, Dr. R. M. Saunders, D. M. Scott, Mrs. M. E. Servos-Snyder, R. W. Sheppard, T. M. Shortt, Dr. Siddigi, L. H. Sinclair, Mrs. W. C. Skelley, W. R. Skey, G. Foster Smith, G. F. M. Smith, T. N. Smith, V. Snowden, L. L. Snyder, H. H. Southam, Southwest Scientific Society, Dr. Cam Sproule, Dr. Fred Starr, Harold Steele, Levi Sternberg, J. A. Stevenson, Dr. V. H. Storey, Frank Stoughton, Edgar E. Sullivan, Miss E. Summers, Hampton W. Swaine, Andrew Tait Estate, Miss Nan Taylor, Roy and William Taylor, Dr. T. M. C. Taylor, S. L. Thompson, G. C. Toner, Toronto Public Library, H. H. Townson, Sprague Troyer, University of Michigan, Thos. F. Upham, Prof. J. Urich, H. A. Van Weeckel, Miss Dorothy Walker, Dr. E. M. Walker, Clarence Watson, J. W. Wickett, G. V. Wilby, A. L. Wilson, Miss M. Wilson, Robert E. Wright, V. C. Wynne-Edwards, Charles Zarobsky.

Additions to the library include 207 bound books and 758 pamphlets and unbound publications.

The use of the Museum's collections by research workers continues to increase. Specimens loaned to institutions and workers outside Toronto include molluscs loaned to the University Illinois and to the University of Michigan, mammals loaned to the University of California and to the United States Bureau of Biological Survey, birds examined by members of the American Ornithologists' Union attending the convention here in October, 1935, from the Smithsonian Institution, the University of Michigan, The Bureau of Biological Survey, also birds were loaned to the United States National Museum.

As a result of a gift by Mrs. B. A. Bensley, the Royal Ontario Museum of Zoology was able to offer the services of a lecturer, Mr. F. A. Urquhart, to school classes visiting the Museum. At first, the response of classes was discouraging, but when the nature of the service became better understood, the number of classes increased. It is hoped to continue this feature next year.

The following studies, chiefly taxonomic and faunistic, have been carried on during the past year by:

L. L. Snyder. Movements of willow ptarmigan (*Lagopus lagopus*) in relation to changes in their populations. Survey of distribution of birds in Central Ontario. Food studies of Ontario birds.

E. C. Cross. Characters and distribution of Ontario wolves.

J. L. Baillie, Jr. Distribution of breeding birds in Ontario.

T. B. Kurata. Distribution of Ontario spiders.

E. B. S. Logier. Taxonomy and distribution of Ontario amphibians and reptiles.

J. G. Oughton. Distribution of Ontario mussels.

Mrs. J. G. Oughton. Distribution of Ontario bats.

(23) STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF GEOLOGY

(Professor E. S. Moore)

Two public lectures were delivered during the year under the auspices of the Museum of Geology: The Origin of the Great Lakes, by Dr. A. P. Coleman and the Story of Oil, by the Director. The section of glacial and interglacial formations at the Don Valley Brick yard has been completed and installed in the gallery and forms an exhibit that is quite unique in museums. Other specimens added to the collections are as follows:

Donations:

Gold ore from the Macassa mine, Kirkland Lake, Ont., by R. A. Bryce.

Suite of specimens of clay, bentonite, shale, and sandstone from Saskatchewan, by H. H. Beach.

Axinite from Porcupine district, Ontario, by Dr. M. E. Hurst.

"Sand carbonate" lead ore, Paradise mine, B.C., by R. W. Brigstocke.

Miner's safety lamp, by Miss A. Pride per Dr. W. A. Parks.

Specimens of monazite and tourmaline pegmatites and axinite and dumortierite, from California, by L. H. Dykes.

Kauri gum from New Zealand, by Miss L. J. Payne.

Gold ore from the Afton mine, Timagami Forest Reserve, by W. E. Aitchison.

Chert from Bedfordshire, England, by H. Cawley.

Collection of clays and till from Port Hope, Bowmanville, Oshawa, Scarborough, and Highland Creek, Ont., by Dr. A. P. Coleman.

Gold ore from God's Lake mine, by R. Jowsey.

Polished specimen showing intricate vein structure from Cornwall iron mines, Penna., by Professor H. Ries.

Limestone from Go-Home-Bay, Ont., by A. M. Bryton.

Specimen illustrating vein structure from Peru, by Dr. T. L. Walker.

Two specimens of Elephas primigenius of post-Glacial age. One from north of West Hill, Ont., by E. R. Halladay and the other from Hamilton, by E. M. Proctor per A. P. Coleman.

Gypsum showing remarkable structure, and a suite of cave deposits from New Mexico, by R. M. Burnet.

Purchases:

Opal from Queensland, Australia.

Suite of concretions from California.

Collection of ores from Colorado.

Bismuth ore from Bolivia.

Axinite and dumortierite from California.

Polished scapolite and wernerite from Ontario.

Lead-zinc ore from Hartz, Germany.

Prepared in the Museum; Geological relief model of the Sudbury nickel field as part of an exhibit of this famous mining field.

Collections:

Rock and ore specimens from the Ramore area and Timagami Forest Reserve, Ontario, and from Pennsylvania.

[24] STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF MINERALOGY

[Director, Dr. T. L. Walker]

In the year under review the museum has added to its great store of minerals and rocks by collection in the field, purchase, exchange, and by donations from friends. The director spent a part of last summer collecting specimens in British Columbia. Professor A. L. Parsons, assistant director, was able to be in the field for three days only for a special collecting trip in Hastings County, Ontario. It is the settled policy of the museum to collect largely so as to be able to secure Canadian material which would otherwise be unobtainable, in order that by exchange with similar institutions in other parts of the world we may secure the best available material which in many cases could not be obtained in any other way. Already this plan has resulted in the enrichment of our collections by exchanges with most of the important museums of the world.

In the exhibition gallery the automatic balopticon with its series of pictures relating to the mineral industry continues to be an attraction to young and old alike. The exhibit of fluorescent minerals is a never failing attraction where thousands can see the different effect of ordinary light and ultra-violet light in producing colour in certain minerals. An ever increasing number of students are making use of the systematic collections of minerals and rocks and the paragenetic collections, with most gratifying results. The larger specimens in the high cases with their descriptive labels have received most favourable comment from visitors. One museum curator has asked for duplicates of these labels for use in his collection.

Further additions of fine specimens of gemstones have been made from money provided by the bequest of the late Reuben Wells Leonard, Esq. The collection now contains good specimens of most of the gemstones and is one of the most popular exhibitions in the gallery.

The work of the last twenty-five years has given the museum one of the finest gallery displays in America, so that the additions of a single year might easily be overlooked. Attention should be called, however, to an enormous slab of black mica from Hastings County which was presented by Dr. T. L. Gledhill. This occupies a wall case just inside the entrance to the gallery.

Heretofore the paid staff in this museum has consisted of two non-scientific assistants. With provision for a part-time scientific museum assistant for the coming year it is hoped that scientific work of value to the mineral industry may be carried on.

[25] STATEMENT REGARDING THE ROYAL ONTARIO MUSEUM OF PALAEONTOLOGY

[Professor W. A. Parks]

The progress in this Museum during the year 1935-36 was as follows:—

Much material was collected by graduate students, a limited number of foreign series was obtained by purchase, and a large collection of vertebrate fossils was collected from the Red Deer River; also, vertebrate material was received in exchange from the University of Pittsburgh and the Los Angeles Museum. Further, I am glad to record that all the remaining material from South America has been received.

In the invertebrate galleries the Ontario material and that obtained by purchase has been put in place, and considerable progress has been made in the installations of wax models in the geological series of cases.

In the vertebrate gallery the chief additions are a fine head of *Megatherium* received from South America; a complete skeleton of the camel *Stenomylus hitchcochi* and an excellent head of *Promerychochoerus* from the Carnegie Museum Pittsburgh.

In the vertebrate workroom an excellent skeleton of a new species of trachodont dinosaur has been completely prepared as an open mount. Another trachodont dinosaur has been prepared for exchange with the Pittsburgh Museum.

Mr. Sternberg has been engaged in repairing and remounting some of the material obtained from South America. In particular, he has completed the carapace of a large *Glyptodon* which is now ready to place in the gallery.

The *Styracosaurus* material obtained by the expedition of 1935 has proved very interesting. We are indebted to Dr. Barnum Brown of the American Museum of Natural History who is collaborating with Mr. Sternberg in the working out of the anatomy.

Owing to the absence of the director, descriptive work on the dinosaurs and the completion of the monograph on stromatoporoids has of necessity been discontinued. Miss Fritz has completed the revision of our large brachiopod collection and has greatly assisted in carrying on the work of the director.

Progress has been made in the making of models in wax for the underwater specimens in the geological series. A new register of all our fossils is now underway; it is hoped that very shortly the registration of material will be in a more satisfactory condition.

The most important acquisitions during the year are as follows:

By donation

Two rare pelecypods from Kansas—Mr. J. B. Litsey, Dallas, Texas.
Crepidophyllum colligatum—Mr. E. J. Buckley, Hamilton, Ontario.
Collection of rocks and fossils from Wales—Professor A. P. Coleman, Royal Ontario Museum, Toronto.
Collection of Carboniferous plants—Mr. H. J. Fairhead, Lake Simcoe Ice and Fuel Ltd., Toronto.
Collection of cephalopods, corals and plants—Mr. W. H. Harris, Port Perry, Ontario.
A set of the publications of the Geological Survey of New Jersey—Dr. Helgi Johnson, Rutgers University, New Jersey.
Specimens of *Gonioceras anceps* and *G. kayi*—Dr. Marshall Kay, Columbia University, New York.
Megalomus canadensis—Mr. D. H. Norman, 440 Millwood Road, Toronto.
Zaphrentis cf. *gigantea*—Mr. E. S. Pentland, Moose River, Ontario.
Plectorthis plicatella—Mrs. H. C. Rae, 40 Charles Street East, Toronto.
Collection of fossils from Alberta—Dr. J. C. Sproule, Royal Ontario Museum of Palaeontology, Toronto.

By exchange

Smilodon californicus (sabre tooth) and *Aenocyon dirus* (wolf)—Dr. C. Stock, Los Angeles Museum, Los Angeles, California.
Megatherium americanum—National Museum, Rio de Janeiro.
Collection of fossils from the Devonian and Cretaceous of Brazil—Brazil Geological Survey.

By purchase

Set of fine brachiopods and sea-urchins from Texas—Mr. J. B. Litsey, Dallas Texas.

By collection

Summer expedition—per Mr. L. Sternberg.
Most of the skeleton of a horned dinosaur (*Styracosaurus albertensis*).
A large part of the crest of *Styracosaurus*.
Part of a head and a number of plates of plated dinosaur.
Skull and part of the skeleton of the plated dinosaur (*Pano*-plosaurus).
Turtle (*Baena*); Turtle (*Aspiderites*); Turtle (*Aspiderites*).
Large ammonite.

APPENDIX B

REPORT OF THE REGISTRAR

(A. B. Fennell, Esq., M.A.)

I beg to submit the following statistics for the year ending June 30th, 1936:—

(*a*) Distribution of the staff of the University and University College (furnished by the Bursar).
(*b*) Distribution of the staffs of the federated Arts Colleges (furnished by the Registrars of the colleges).
(*c*) Registration of students by faculties and years.
(*d*) Enrolment in the Arts Colleges (furnished by the Registrars of the colleges).
(*e*) Enrolment in the university departments in Arts (furnished by the departments).
(*f*) Registration in courses in the Faculty of Arts.
(*g*) Registration in courses in the School of Graduate Studies (furnished by the Secretary of the School).
(*h*) Results of annual examinations (furnished by the Secretaries of the faculties).
(*i*) Admission to degrees.
(*j*) Geographical distribution of students (furnished by the Secretaries of the faculties).

(*a*) Distribution of the Staff of the University and University College:

	Professors	Associate Professors	Assistant Professors	Associates	Lecturers	Directors	Assistant Directors	Instructors	Other Sessional Appointments
University (Faculty of Arts).....	42	32	28	—	37	—	—	—	130
University College.....	16*a*	8	9	—	9	—	—	—	2
Faculty of Medicine.....	24*b*	9	28	28	22*c*	—	—	—	195*d*
Faculty of Applied Science.....	15	10	10	—	21	—	—	—	45*e*
Faculty of Household Science....	2	—	2	—	5	—	—	—	9
Ontario College of Education....	7	4	3	—	14	—	—	31*f*	—
Faculty of Forestry.....	2	2	1	—	2	—	—	—	1*g*
Faculty of Music.....	—	—	—	—	4	—	—	—	—
Faculty of Dentistry.....	13	5*h*	1*h*	19	2*h*	—	—	—	8*i*
Social Science.....	—	—	1	—	16*j*	1	1	—	2
School of Nursing.....	—	—	—	—	29*k*	1	1	—	—

a 1 also in University
b 1 also in Arts
c 1 also in Arts; 2 also in Dentistry
d 3 also in Arts
e 2 also in Arts
f 2 also in University College; 1 also in Medicine and Dentistry
g 1 also in Arts and Dentistry
h 1 also in Medicine
i 1 also in Arts and Forestry
j 1 also in Dentistry
k 12 also in Medicine; 2 also in Dentistry; 1 also in Ontario College of Education

(*b*) Distribution of the Staffs of the Federated Arts Colleges:

	Victoria College	Trinity College	St. Michael's College
Professors.....	11	12	15
Associate professors.....	6	4	11
Assistant professors.....	2	..	1
Lecturers.....	9	5	12
Instructors.....	5	1	13
Fellows.....	1	2	..
Readers.....	2	..	..

(c) Registration of Students by Faculties and Years:

The number of students registered in the university, in colleges and faculties, in the session 1935-36 was 7,409, distributed as follows:

				Men	Women	Total
Faculty of Arts				2,234	1,796	4,030
University of Toronto	652	501	1,153			
University College	650	535	1,185			
Victoria College	468	497	965			
Trinity College	239	143	382			
St. Michael's College	227	127	354			
Registered twice	2	7	9			
Faculty of Medicine				829	63	892
Faculty of Applied Science and Engineering				763	4	767
Faculty of Household Science				...	53	53
Ontario College of Education				482	347	829
Faculty of Forestry				37	...	37
Faculty of Music				26	14	40
School of Graduate Studies				452	161	613
Faculty of Dentistry				195	23	218
Registered twice				55	15	70
				4,963	2,446	7,409

In departments there were registered 539, distributed as follows:

Department of Social Science	16	104	120
School of Nursing	...	349	349
University Extension (Occupational Therapy)	...	36	36
University Extension (Physiotherapy)	...	34	34
	16	523	539

The grand total of registration for the whole university was 7,948, of whom 4,979 were men and 2,969 were women.

In addition there were 5,894 persons registered in the Department of University Extension in courses and at provincial centres which are referred to in detail in Appendix A (14).

The figures may be further analysed as follows:

Faculty of Arts

University of Toronto

	Men	Women	Total
Teachers' Classes and Summer Session	418	467	885
Occasional Arts students	234	34	268
	652	501	1,153

University College

	Men	Women	Total
First year undergraduates	206	165	371
Second year undergraduates	186	143	329
Third year undergraduates	142	134	276
Fourth year undergraduates	102	72	174
Occasional students	14	21	35
	650	535	1,185

Victoria College

	Men	Women	Total
First year undergraduates	143	168	311
Second year undergraduates	129	139	268
Third year undergraduates	124	118	242
Fourth year undergraduates	68	66	134
Occasional students	4	6	10
	468	497	965

Trinity College

	Men	Women	Total
First year undergraduates	79	52	131
Second year undergraduates	73	39	112
Third year undergraduates	56	39	95
Fourth year undergraduates	30	13	43
Occasional students	1	..	1
	239	143	382

St. Michael's College

	Men	Women	Total
First year undergraduates	103	53	156
Second year undergraduates	59	34	93
Third year undergraduates	53	26	79
Fourth year undergraduates	11	9	20
Occasional students	1	5	6
	227	127	254

Faculty of Medicine

	Men	Women	Total
First year undergraduates	150	12	162
Second year undergraduates	148	9	157
Third year undergraduates	142	12	154
Fourth year undergraduates	117	9	126
Fifth year undergraduates	115	8	123
Sixth year undergraduates	122	9	131
Candidates for Degree of B.Sc. (Med.)	5	1	6
Candidates for D.P.H.	10	..	10
Diploma in Radiology	1	..	1
Diploma in Psychiatry	6	..	6
Graduate students	7	2	9
Occasional students	6	1	7
	829	63	892

Faculty of Applied Science and Engineering

	Men	Women	Total
First year undergraduates	249	1	250
Second year undergraduates	174	..	174
Third year undergraduates	159	1	160
Fourth year undergraduates	174	2	176
Fifth year undergraduates	7	..	7
	763	4	767

Faculty of Household Science

	Men	Women	Total
First year undergraduates	..	10	10
Second year undergraduates	..	9	9
Third year undergraduates	..	28	28
Fourth year undergraduates	..	4	4
Occasional students	..	2	2
	..	53	53

Ontario College of Education

	Men	Women	Total
Students in attendance	184	237	421
Extra-mural students	114	89	203
Students in B.Paed. course	192	23	215
Registered twice	8	2	10
	482	347	829

Faculty of Forestry

	Men	Women	Total
First year undergraduates	8	...	8
Second year undergraduates	7	...	7
Third year undergraduates	8	...	8
Fourth year undergraduates	14	...	14
	37	...	37

Faculty of Music

	Men	Women	Total
First year undergraduates	5	5	10
Second year undergraduates	9	7	16
Third year undergraduates	12	2	14
	26	14	40

School of Graduate Studies

	Men	Women	Total
Candidates for Ph.D	120	23	143
Candidates for M.A	112	44	156
Candidates for M.S	2	...	2
Candidates for M.A.Sc	11	...	11
Candidates for C.E	2	...	2
Candidates for E.E	2	...	2
Candidates for D.Paed	92	8	100
Candidates for M.Sc.F	2	...	2
Candidates for M.Sc. (Dent.)	3	...	3
Candidates for M.S.A	4	...	4
Candidates for Mus. Doc	3	...	3
Graduate students	99	86	185
	452	161	613

Faculty of Dentistry

	Men	Women	Total
First year undergraduates	32	..	32
Second year undergraduates	36	1	37
Third year undergraduates	26	1	27
Fourth year undergraduates	40	...	40
Fifth year undergraduates	56	...	56
Candidates for Degree of B.Sc. (Dent.)	4	...	4
Dental Nurses	...	20	20
Occasional Students	1	1	2
	195	23	218

Department of University Extension

	Men	Women	Total	Grand Total
B.A. Course				
Summer Session:				
Regular students	167	195	362	...
Occasional students	8	8	16	378
Teachers' Classes:				
Toronto:				
Regular students	283	307	590	...
Occasional students	9	4	13	603
Specialists' Courses				
Summer Session:				
Regular students	32	10	42	42
Registered twice	81	57	138	138
	418	467	885	885

Department of Social Science

	Men	Women	Total
First year full-time students	10	41	51
Second year full-time students	2	28	30
"Apprentice" students (Second year)	3	1	4
Part-time students	1	34	35
	16	104	120

School of Nursing

	Men	Women	Total
Full-time students	...	81	81
Part-time students	...	268	268
	...	349	349

(*d*) Enrolment in the Arts Colleges

(1) University College:

	Greek	Latin	Greek and Roman History	Oriental Languages	Oriental History	English	German	German (Sc.)	French	Ethics	Oriental Literature
First Year—											
Pass	12	14	21	23	12	204	22	58	241	19	99
Honour	9	22	38	2	..	45	25	..	44	11	..
Second Year—											
Pass	4	15	18	7	12	106	11	29	135	33	73
Honour	7	16	5	4	..	30	25	..	35	9	..
Third Year—											
Pass	7	10	41	10	16	127	19	..	79	83	76
General	..	1	..	..	..	..	1	..	3	..	..
Honour	13	23	25	1	..	30	14	..	25	7	..
Fourth Year—											
Pass	..	..	30	..	..	..	..	..	..	42	55
General	..	..	..	..	..	2	1	..	3	..	..
Honour	9	17	13	2	..	30	7	..	20	9	..
Totals—											
Pass	23	39	110	40	40	437	52	87	455	177	303
General	..	1	..	..	..	2	2	..	6	36	..
Honour	38	78	81	9	..	135	71	..	124	..	..
Teachers' Classes	..	6	..	..	..	35	3	..	63	17	..
Graduate Studies	8	10	6	11	..	62	7	..	12	..	..
Other Faculties	..	..	..	..	..	..	306	..	111	..	..
Grand Total	69	134	197	60	40	671	441	87	771	230	303

(2) Victoria College:

	Greek	Latin	Greek and Roman History	Oriental Languages	Oriental History	English	German	German (Sc.)	French	Ethics	Religious Know.
First Year—											
Pass	6	5	18	11	1	166	14	43	173	15	114
Honour	2	18	38	..	..	51	33	..	52	11	..
Second Year—											
Pass	4	12	36	1	5	111	15	20	99	16	119
Honour	9	20	8	..	..	34	21	..	31	10	..
Third Year—											
Pass	2	17	43	..	3	90	10	2	64	50	83
General	1	1	3	..	..	4	..	..	1	..	..
Honour	5	16	5	..	..	32	13	..	15	8	..
Fourth Year—											
Pass	..	..	29	..	..	..	..	..	..	20	32
General	..	..	1	..	..	4	..	..	1	..	..
Honour	9	10	9	..	..	26	16	..	20	8	..
Totals—											
Pass	12	34	126	12	9	367	39	65	336	101	348
General	1	1	4	..	..	8	..	..	2	..	..
Honour	25	64	60	..	..	143	83	..	118	37	..
Teachers' Classes	..	..	..	..	..	88	2	..	41	..	..
Graduate Studies	6	8	..	1	1	14	3	..	1	3	..
Grand Total	44	107	190	13	10	620	127	65	498	141	348

(3) Trinity College:

	Greek	Latin	Greek and Roman History	Oriental Languages	Oriental History	English	German	German (Sc.)	French	Ethics	Religious Know.
First Year—											
Pass	6	5	1	..	..	62	7	14	63	5	115
Honour	2	10	20	..	..	21	15	..	21	6	..
Second Year—											
Pass	9	6	6	..	..	45	7	11	30	22	106
Honour	6	8	8	..	..	7	1	..	4	3	..
Third Year—											
Pass	2	6	5	..	..	37	3	..	29	20	88
General	..	..	..	1	..	1	..	..	..	..	..
Honour	3	3	3	..	..	7	1	..	3	2	..
Fourth Year—											
Pass	..	..	..	..	..	..	2	..	..	..	37
Honour	3	3	3	..	..	5	3	..	6	1	..
Totals—											
Pass	17	17	12	..	..	144	19	25	122	47	346
General	..	..	..	1	..	1	..	..	..	..	..
Honour	14	24	34	..	..	40	20	..	34	12	..
Grand Total	31	41	46	1	..	185	39	25	156	59	346

(4) St. Michael's College:

	Greek	Latin	Greek and Roman History	English	German	German (Sc.)	French	Ethics	Philosophy	Religious Know.
First Year—										
Pass	2	48	12	80	13	9	73	34	65	114
Honour	1	7	5	13	2	..	9	7	13	..
Second Year—										
Pass	2	36	2	50	3	1	44	18	33	62
Honour	3	5	3	5	2	..	4	10	8	..
Third Year—										
Pass	1	35	1	45	3	..	35	27	32	64
Honour	3	3	2	3	2	..	4	7	7	..
Fourth Year—										
Pass	..	..	..	..	..	..	..	..	..	12
Honour	1	4	2	3	3	..	4	4	4	..
Totals—										
Pass	5	119	15	175	19	10	152	79	130	252
Honour	8	19	12	24	9	..	21	28	32	..
Teachers' Classes	..	..	..	..	..	..	..	..	19	..
Graduate Studies	..	..	..	..	..	..	..	..	17	..
Grand Total	13	138	27	199	28	10	173	107	198	252

(e) Enrolment in the University Departments in Arts:

The following tables exhibit the numbers attending lectures in the university departments in the Faculty of Arts, together with the number of those taking the practical work in the laboratories:

Department of Anthropology

	Pass	Pass and Honour	Honour	General
Faculty of Arts—				
First Year	212	..	28	..
Second Year	..	8	23	..
Third Year	1	..	4	..
Fourth Year	57	..	8	2
School of Graduate Studies	..	..	9	..
Department of Social Science—				
First Year	..	48	..	..
Totals	270	56	72	2

Department of Applied Mathematics

	Pass and Honour	Honour
Faculty of Arts—		
Second Year	..	42
Third Year	..	37
Fourth Year	..	18
Faculty of Applied Science and Engineering—		
Second Year	13	..
School of Graduate Studies	..	21
Totals	13	118

Department of Archaeology

	Lecture Courses	
	1 or 2 or 3 hours	
	Pass	Honour
Faculty of Arts—		
First Year	22	..
Second Year	44	50
Third Year	..	16
Fourth Year	..	18
Occasional Students	..	1
School of Graduate Studies	..	5
Totals	66	90

Department of Astronomy

	Pass	Honour	Laboratory
Faculty of Arts—			
First Year	7	..	7
Second Year	47	..	8
Third Year	5	25	23
Fourth Year	..	8	..
Faculty of Applied Science and Engineering—			
Second Year	..	8	..
School of Graduate Studies	..	2	..
Department of University Extension—			
Evening Classes	47	..	..
Totals	106	43	38

Department of Biology

	Lecture Courses						Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours			
	Pass	Honour	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—								
First Year	235	108	..	..	..	..	138	108
Second Year	63	81	..	..	..	..	63	81
Third Year	50	57	..	..	..	..	50	35
Fourth Year	..	5	..	2	..	10	..	17
Teachers' Classes	77	..	..	..	..	..	77	..
Occasional Students	1	3	..	..	..	..	1	3
Faculty of Medicine—								
First Year	..	171	..	..	..	..	..	171
Third Year	..	1	..	..	..	..	..	1
Faculty of Household Science—								
First Year	..	11	..	..	..	..	..	11
Faculty of Forestry—								
First Year	..	8	..	..	..	..	..	8
Fourth Year	..	14	..	..	..	..	..	14
Faculty of Dentistry—								
First Year	..	32	..	..	..	..	..	32
School of Graduate Studies	..	..	..	..	..	..	..	35
Department of Social Science—								
Second Year	..	20	..	..	..	..	..	..
School of Nursing	17	..	..	..	..	..	17	..
College of Optometry of Canada	..	25	..	..	..	..	..	25
Totals	443	536	..	2	..	10	346	541

Department of Botany

	Lecture Courses		Laboratory Courses	
	1 or 2 or 3 hours			
	Pass	Honour	Pass	Honour
Faculty of Arts—				
First Year	23	109	23	109
Second Year	23	13	23	51
Third Year	9	6	9	6
Fourth Year	..	16	..	19
Occasional Students	..	2	..	2
Faculty of Applied Science and Engineering—				
First Year	..	..	85	..
Faculty of Household Science—				
First Year	11	..	11	..
Second Year	9	..	9	..
Faculty of Forestry—				
First Year	..	8	..	8
Fourth Year	..	..	..	14
School of Graduate Studies	..	..	..	22
Ontario College of Pharmacy				
First Year	87	..	87	..
Second Year	..	..	104	..
Totals	162	154	351	231

Department of Chemistry

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts—				
First Year	195	..	167	265
Second Year	56	..	120	160
Third Year	28	..	30	54
Fourth Year	3	..	15	17
Teachers' Classes	46	..	..	46
Occasional Student	1	..	..	1
Faculty of Medicine—				
First Year	..	174	..	174
Second Year	..	128	..	128
Faculty of Applied Science and Engineering—				
First Year	..	103	..	103
Second Year	..	76	..	76
Third Year	..	122	..	122
Fourth Year	..	18	..	18
Faculty of Household Science—				
First Year	..	10	..	10
Second Year	..	11		..
Faculty of Forestry—				
First Year	10	..	..	10
Second Year	7	..	..	..
Faculty of Dentistry—				
First Year	..	33	..	33
Second Year	..	37	..	37
Third Year	..	27	..	27
School of Graduate Studies	..	49	..	34
Ontario College of Pharmacy—				
First Year	87	..	..	87
Second Year	104	..	..	104
College of Optometry of Canada	12	..	..	..
Totals	549	788	332	1,506

Department of Fine Art

	Pass
Faculty of Arts—	
First Year	28
Second Year	77
Third Year	31
Totals	136

Department of Food Chemistry
(Faculty of Household Science)

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts—				
Second Year	22	..	..	22
Third Year	19	..	5	24
Fourth Year	..	1	44	45
Occasional Students	..	..	2	2
Faculty of Household Science—				
Second Year	10	..	..	10
Third Year	14	..	3	17
Fourth Year	..	..	4	4
Occasional Student	1	..	..	1
School of Graduate Studies	..	..	9	9
Totals	66	1	67	134

Department of Geography

	Honour	Laboratory
Faculty of Arts—		
First Year	139	..
Ontario College of Education	350	..
School of Graduate Studies	18	3
Totals	507	3

Department of Geology and Palaeontology

	Lecture Courses				Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours			
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—						
First Year	115	68	..	..	..	..
Second Year	13	16	..	..	13	38
Third Year	19	11	..	4	19	11
Fourth Year	..	6	..	4	..	4
Teachers' Classes	28	..	..	..	28	..
Occasional Students	..	..	..	3	..	3
Faculty of Applied Science and Engineering—						
Second Year	59	..	..	..	13	..
Third Year	29	..	..	..	21	..
Fourth Year	19	..	..	..	17	..
Faculty of Forestry—						
Second Year	7	..	..	..	..	..
Third Year	8	..	..	..	8	..
School of Graduate Studies	..	2	..	9	..	11
Totals	297	103	..	20	119	67

Department of History

	Lecture Courses					
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours	
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—						
First Year	..	65	196	11	..	..
Second Year	..	34	105	126	..	..
Third Year	..	..	88	62	11	..
Fourth Year	..	53	..	6	..	..
Teachers' Classes	302	..	..	..	..	..
Occasional Students	3	..	..	7	..	..
School of Graduate Studies	..	..	..	27	..	..
Department of University Extension Evening Classes	125	..	..	..	..	..
Totals	430	152	389	239	11	..

Department of Household Science
(Faculty of Household Science)

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts—				
First Year	..	..	39	..
Second Year	9	..	40	48
Third Year	13	2	35	50
Fourth Year	..	1	44	45
Occasional Students	1	..	2	3
Faculty of Household Science—				
First Year	10	..	..	..
Second Year	..	10	..	10
Third Year	14	1	14	29
Fourth Year	..	..	4	4
School of Graduate Studies	..	..	7	7
School of Nursing	30	..	..	30
Totals	77	14	185	226

Department of Italian and Spanish

	Italian		Spanish	
	Pass	Honour	Pass	Honour
Faculty of Arts—				
First Year	28	9	85	33
Second Year	9	2	62	27
Third Year	13	..	67	8
Fourth Year	..	1	..	10
School of Graduate Studies	..	2	..	6
Totals	50	14	214	84

Department of Law

	Pass	Honour
Faculty of Arts—		
First Year	..	38
Second Year	..	37
Third Year	..	21
Fourth Year	..	16
Faculty of Applied Science and Engineering—		
Third Year	50	..
Faculty of Forestry—		
Third Year	9	..
School of Graduate Studies	..	9
Department of University Extension—		
Evening Classes	383	..
Bachelor of Laws Course	..	9
Totals	442	130

Department of Mathematics

	Lecture Courses					
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours	
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—						
First Year	86	75	..	60	..	..
Second Year	60	100	..	44	..	..
Third Year	36	60	..	10	..	..
Fourth Year	1	20	..	..	..	9
Teachers' Classes	30	..	..	..	..	..
Faculty of Medicine—						
First Year	18	..	..	..	..	..
Faculty of Applied Science and Engineering—						
First Year	226	..	11	..	..	..
Second Year	100	..	7	..	..	..
Faculty of Forestry—						
First Year	..	..	8	..	..	..
School of Graduate Studies	..	4	..	..	..	14
College of Optometry of Canada	10	..	..	..	..	..
Totals	567	259	26	114	..	23

Department of Military Studies

	Pass
Faculty of Arts—	
First Year	22
Second Year	20
Third Year	5
Fourth Year	5
Occasional Students	2
Faculty of Medicine—	
First Year	8
Second Year	2
Third Year	3
Fourth Year	5
Fifth Year	1
Faculty of Applied Science and Engineering—	
First Year	12
Second Year	9
Third Year	1
Fourth Year	2
Faculty of Dentistry—	
Second Year	2
Ontario College of Education	1
School of Graduate Studies	2
Ontario College of Pharmacy—	
First Year	2
Totals	104

Department of Mineralogy and Petrography

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts—				
First Year	25	..	..	25
Second Year	1	..	30	31
Third Year	..	..	21	6
Fourth Year	..	..	8	5
Occasional Students	..	4	..	4
Faculty of Applied Science and Engineering—				
First Year	..	163	..	163
Second Year	..	46	..	46
Third Year	..	20	..	20
Fourth Year	..	3	..	3
Faculty of Forestry—				
Second Year	..	11	..	11
School of Graduate Studies	..	..	11	11
Totals	26	247	70	325

Department of Philosophy

	Pass	Pass and Honour	Honour
Faculty of Arts—			
First Year	85	..	102
Second Year	122	..	145
Third Year	184	..	73
Fourth Year	60	20	35
Teachers' Classes	17	..	..
School of Graduate Studies	..	..	46
Department of Social Science—			
First Year	46	..	..
Totals	514	20	401

Department of Physics

	Pass	Pass and Honour	Honour	Laboratory
Faculty of Arts—				
First Year	173	..	168	235
Second Year	62	..	105	153
Third Year	41	..	41	70
Fourth Year	7	..	26	29
Teachers' Classes, Summer Session	23	..	..	22
Candidates for Specialists' Certificates, Summer Session	..	..	8	6
Faculty of Medicine—				
First Year	..	174	..	174
Diploma in Radiology	..	1	..	1
Faculty of Applied Science and Engineering—				
First Year	..	..	12	12
Second Year	..	..	8	8
Faculty of Household Science—				
First Year	..	..	11	11
Faculty of Forestry—				
First Year	..	11	..	11
Faculty of Dentistry—				
First Year	..	32	..	32
School of Graduate Studies	..	..	60	30
College of Optometry of Canada	..	24	..	26
Department of University Extension—				
Physiotherapy	21	..	..	21
Totals	327	244	439	841

Department of Political Science

	Lecture Courses					
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours	
	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—						
First Year	125	75	..	..	..	115
Second Year	200	21	4	..	..	92
Third Year	178	31	..	..	7	57
Fourth Year	5	23	..	..	..	78
Occasional Students	2	2	1	1	..	..
Faculty of Household Science—						
Second Year	5	..	..	..	..	..
Third Year	21	..	..	..	..	..
Faculty of Forestry—						
Third Year	5	..	..	..	..	..
School of Graduate Studies	..	..	..	..	..	22
Totals	541	152	5	1	7	364

Department of Psychology

	Lecture Courses						Laboratory Courses	
	1 or 2 or 3 hours		4 or 5 or 6 hours		7 or more hours			
	Pass	Honour	Pass	Honour	Pass	Honour	Pass	Honour
Faculty of Arts—								
First Year	180	..	..	28	..	..	..	..
Second Year	130	17	..	14	..	10	107	27
Third Year	110	4	..	6	..	2	26	12
Fourth Year	62	8	..	6	..	4	..	4
Teachers' Classes	126	..	..	..	..	..	..	..
Teachers' Classes, Summer Session	21	..	..	..	..	..	..	..
Occasional Students	6	..	..	..	..	..	..	..
Faculty of Medicine—								
Second Year	..	128	..	..	..	..	..	..
Third Year	..	20	..	..	..	..	..	20
Fourth Year	..	25	..	..	..	..	..	..
Faculty of Household Science—								
First Year	7	..	..	..	..	..	..	..
Second Year	5	..	..	..	..	..	..	..
Third Year	18	..	..	..	..	..	..	..
Fourth Year	1	..	..	..	..	..	..	..
School of Graduate Studies	..	24	..	18	..	12	..	32
Department of Social Science—								
First Year	31	..	..	..	..	..	..	..
Second Year	36	..	..	..	..	..	..	..
School of Nursing	28	..	..	..	..	..	..	..
College of Optometry of Canada	20	..	..	..	..	..	..	..
Department of University Extension—								
Occupational Therapy	34	..	..	..	..	..	..	..
Physiotherapy	19	..	..	..	..	..	..	..
Evening Classes	320	..	..	..	..	..	..	..
Centralised Pupil Nurses	225	..	..	..	..	..	..	..
Totals	1,379	226	..	72	..	28	133	95

(f) Registration in Courses in the Faculty of Arts

Courses	First Year						Second Year						Third Year						Fourth Year						Totals
	U	C	V	C	T	C	M	C	U	C	V	C	T	C	M	C	U	C	V	C	T	C	M	C	U	C	V	C	T	C	M	C	
Pass	155		127		43		118		129		117		54		65		124		102		42		56		..		..		..		..		1,132
General	..		..		..		..		..		..		..		..		2		6		1		1		7		5		2		..		24
Classics	7		2		2		..		3		5		6		2		8		5		3		..		6		6		3		..		58
Greek and Hebrew	2		..		..		..		1		..		..		..		..		..		..		..		2		..		..		..		5
Oriental Languages	..		..		..		..		3		..		..		..		..		..		..		..		..		..		..		..		3
Hebrew and Ancient History	..		..		..		..		1		..		..		..		1		..		..		..		..		..		..		..		2
Latin (French or Greek Option) Div. I	4		5		2		2		1		..		2		2		4		..		1		1		3		..		..		2		36
Latin (French or Greek Option) Div II									1		3		..		..		..		..		..		..		..		3		..		..		
Modern Languages	28		29		13		6		25		21		1		4		23		16		3		4		16		19		6		3		217
English and History	14		17		7		6		10		12		1		2		14		16		4		..		16		11		2		3		135
Modern History	6		3		3		..		1		2		2		..		1		4		4		2		2		3		2		..		35
Political Science and Economics	13		14		18		..		25		11		9		1		8		6		13		..		13		11		8		..		150
Sociology	4		11		1		..		7		10		..		..		..		3		1		..		4		4		..		..		45
Law	29		3		3		..		19		8		7		1		14		5		2		..		7		3		6		..		107
Philosophy	2		6		1		7		3		1		..		4		..		2		..		5		5		2		..		4		42
Philosophy (English or History Option)	3		5		6		6		3		9		3		4		6		6		2		2		1		5		1		..		62
Psychology	6		5		2		..		4		5		1		..		2		..		..		..		3		1		..		..		29
Mathematics and Physics (Div. I)																	3		7		1		..		6		2		..		..		
Mathematics and Physics (Div. II)	27		14		5		2		14		12		5		1		7		3		..		1		6		1		..		2		133
Mathematics and Physics (Div. III)																	1		1		1		1		1		..		..		..		
Mathematics and Physics (Div. IV and V)																	2		3		..		..		1		1		1		1		
Physics and Chemistry	..		..		..		..		4		..		3		..		3		2		..		..		2		1		..		..		15
Physics and Geology	..		..		..		..		2		..		..		..		..		..		..		..		..		..		..		..		2
Science	25		25		9		6		..		..		..		..		..		..		..		..		..		..		..		..		65
Physics	..		..		..		..		1		1		2		1		..		1		..		..		..		..		..		..		6
Biology	..		..		..		..		2		3		..		..		1		1		1		..		5		5		..		..		18
Physiology and Biochemistry	..		..		..		..		2		3		..		..		2		1		3		1		3		..		1		..		16
Biological and Medical Sciences	..		..		..		..		13		6		4		1		16		11		2		2		16		9		2		2		84
Chemistry	..		..		..		..		7		5		2		..		7		5		1		3		6		3		..		..		39
Chemistry, Mineralogy and Geology, Div. I	..		..		..		..		2		1		2		..		..		..		..		..		1		..		..		..		9
Chemistry, Mineralogy and Geology, Div. II	..		..		..		..										..		1		1		..		..		1		..		..		
Geology and Mineralogy	..		..		..		..		3		2		1		..		..		2		..		..		..		1		..		..		9
Science (General)	..		..		..		..		1		..		..		..		1		1		..		..		..		2		..		..		5
Household Economics	20		16		3		1		12		23		3		2		15		17		3		..		20		19		4		1		159
Commerce and Finance	26		29		13		2		31		8		4		3		11		15		6		..		22		16		5		2		193
Registered twice	..		..		..		..		1		..		..		..		..		..		..		..		..		..		..		..		1
Totals	371		311		131		156		329		268		112		93		276		242		95		79		174		134		43		20		2,834

(*g*) Registration in Courses in the School of Graduate Studies

Department	Ph.D.	M.A.	M.S.	M.A. Sc.	C.E.	E.E.	D. Paed.	M.Sc. F.	M.Sc. Dent.	Mus. Doc.	M.S.A.	Grad. Stud.
Anatomy	..	1	..	..	..	..	..	..	..	..	..	..
Applied Mathematics	1	3	..	..	..	..	..	..	..	..	..	1
Anthropology	..	..	..	..	..	..	..	..	..	..	..	3
Astronomy	..	2	..	..	..	..	..	..	..	..	..	..
Biochemistry	6	4	..	..	..	..	..	..	..	..	..	2
Biology	15	2	..	..	..	..	..	..	..	..	..	7
Botany	11	2	..	..	..	..	..	..	..	..	2	2
Chemistry	22	15	..	..	..	..	..	..	..	..	2	2
Chemical Engineering	2	..	..	4	..	..	..	..	..	..	..	1
Civil Engineering	..	..	..	3	2	..	..	..	..	..	..	1
Classics	2	11	..	..	..	..	..	..	..	..	..	10
Dentistry	..	..	..	..	..	..	..	..	3	..	..	..
Educational Theory	..	..	..	..	..	..	..	..	..	..	..	3
Electrical Engineering	..	..	..	..	..	2	..	..	..	..	..	..
English	2	22	..	..	..	..	..	..	..	..	..	38
Epidemiology and Biometrics	2	..	..	..	..	..	..	..	..	..	..	..
Food Chemistry	..	2	..	..	..	..	..	..	..	..	..	5
Forestry	..	..	..	..	..	..	..	2	..	..	..	..
Geology and Palaeontology	5	3	..	..	..	..	..	..	..	..	..	1
Germanic Languages	..	5	..	..	..	..	..	..	..	..	..	5
History	6	13	..	..	..	..	..	..	..	..	..	8
Household Science	..	4	..	..	..	..	..	..	..	..	..	3
Hygiene and Preventive Medicine	..	..	..	..	..	..	..	..	..	..	..	1
Law	1	6	..	..	..	..	..	..	..	..	..	2
Mathematics	2	6	..	..	..	..	..	..	..	..	..	4
Mechanical Engineering	2	..	..	1	..	..	..	..	..	..	..	1
Mineralogy	2	2	..	..	..	..	..	..	..	..	..	..
Mining Engineering	..	..	..	3	..	..	..	..	..	..	..	..
Music	..	..	..	..	..	..	..	..	..	3	..	..
Pathology and Bacteriology	2	2	..	..	..	..	..	..	..	..	..	3
Pathological Chemistry	5	..	..	..	..	..	..	..	..	..	..	..
Pedagogy	..	..	..	..	..	..	100	..	..	..	..	..
Philosophy	10	16	..	..	..	..	..	..	..	..	..	25
Physics	19	9	..	..	..	..	..	..	..	..	..	1
Physiology	8	4	..	..	..	..	..	..	..	..	..	2
Physiological Hygiene	1	..	..	..	..	..	..	..	..	..	..	..
Political Science	6	6	..	..	..	..	..	..	..	..	..	6
Psychiatry	2	..	..	..	..	..	..	..	..	..	..	..
Psychology	4	7	..	..	..	..	..	..	..	..	..	32
Romance Languages	1	6	..	..	..	..	..	..	..	..	..	9
Semitic Languages	1	3	..	..	..	..	..	..	..	..	..	5
Surgery	..	..	2	..	..	..	..	..	..	..	..	..
Special Committees	3	..	..	..	..	..	..	..	..	..	..	2
Totals	143	156	2	11	2	2	100	2	3	3	4	185

(*h*) Results of the Annual Examinations

Faculty of Arts

First Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Failed	Aegrotat	Deferred	Debarred
Pass	..	145	123	42	111	421	268	95	58	8	..	47
Supplementals	..	24	18	10	8	60	44	16	..	..	..	..
Classics	..	6	2	2	..	10	10	..	..	..	..	..
Greek and Hebrew	..	1	..	..	..	1	1	..	..	..	..	..
Latin (French or Greek Option)	..	4	5	2	2	13	9	..	4	1	..	..
Modern Languages	..	27	29	13	6	75	54	3	18	1	1	..
English and History	..	13	16	6	6	41	29	1	11	1	..	..
Modern History	..	6	3	2	..	11	8	2	1	..	..	..
Political Science and Economics	..	13	14	18	..	45	26	7	12	..	2	2
Sociology	..	4	11	1	..	16	11	1	4	..	..	..
Law	..	29	3	3	..	35	28	5	2	..	..	..
Philosophy	..	1	6	1	7	15	12	..	3	1	..	..
Philosophy (English or History Option)	..	3	5	6	6	20	16	1	3	..	..	1
Psychology	..	6	5	1	..	12	9	3	..	1	2	2
Mathematics and Physics	..	25	13	4	2	44	30	6	8	..	..	1
Science	..	25	22	9	5	61	40	7	14	..	1	3
Household Economics	..	20	16	2	1	39	29	7	3	3	1	2
Commerce and Finance	..	26	29	13	2	70	44	14	12	1	5	6
Occasional Students	9	3	1	..	..	13	12	1	..	..	..	..
Totals	9	381	321	135	156	1,002	680	169	153	17	12	64

Second Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Failed	Aegrotat	Deferred	Debarred
Pass	..	118	110	53	64	345	243	65	37	8	..	15
Supplementals	..	19	19	4	9	51	31	20	..	..	..	..
Classics	..	3	5	6	2	16	13	..	3	..	..	..
Greek and Hebrew	..	1	..	..	..	1	1	..	..	..	..	..
Oriental Languages	..	3	..	..	..	3	3	..	..	..	..	..
Latin (French or Greek Option) Div. I.	..	1	..	2	2	5	3	1	1	..	..	..
Latin (French or Greek Option) Div. II.	..	1	3	..	..	4	4	..	..	..	..	..
Modern Languages	..	25	21	1	4	51	46	2	3	1	..	..
English and History	..	10	12	1	2	25	24	..	1	..	..	..
Modern History	..	1	2	2	..	5	3	2	..	..	..	..
Political Science and Economics	..	23	8	9	1	41	31	2	8	1	..	1
Sociology	..	7	10	..	..	17	13	..	4	..	..	..
Law	..	18	8	6	1	33	27	4	2	..	..	..
Philosophy	..	3	1	..	3	7	7	..	..	2	..	..
Philosophy (English or Hist. Option)	..	3	9	3	4	19	15	2	2	..	..	..
Psychology	..	4	5	1	..	10	6	3	1	..	..	..
Mathematics and Physics	..	14	12	4	1	31	19	2	10	..	..	1
Physics and Chemistry	..	4	..	3	..	7	3	1	3	..	1	1
Physics and Geology	..	2	..	..	..	2	..	1	1	..	1	1
Physics	..	1	..	2	1	4	2	1	1	..	1	1
Biology	..	2	3	..	..	5	3	..	2	..	..	..
Physiology and Biochemistry	..	2	3	..	..	5	3	..	2	1	..	..
Biological and Medical Sciences	..	12	6	4	1	23	17	2	4	..	1	1
Chemistry	..	7	5	2	..	14	7	2	5	..	..	..
Chemistry, Mineralogy and Geology	..	2	1	2	..	5	4	1	..	..	..	..
Geology and Mineralogy	..	2	2	1	..	5	1	4	..	..	1	1
Science (General)	..	1	..	..	..	1	..	..	1	..	..	..
Household Economics	..	10	22	3	2	37	25	5	7	1	2	3
Commerce and Finance	..	30	8	4	3	45	33	5	7	..	..	3
Occasional Students	6	1	..	..	..	7	7	..	..	..	..	..
Registered Twice	..	1	..	..	..	1	1	..	..	..	..	..
Totals	6	329	275	113	100	823	593	125	105	14	7	28

Third Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Failed	Aegrotat	Honours Deferred	Debarred
Pass	..	120	106	42	58	326	260	44	22	6	..	..
Supplementals	..	10	9	..	..	19	12	7	..	..	..	..
General	..	2	6	1	1	10	10	..	..	..	..	..
Classics	..	8	5	3	..	16	15	..	1	3	..	..
Hebrew and Ancient History	..	1	..	..	..	1	1	..	..	..	..	..
Latin (French or Greek Option) Div. I.	..	4	..	1	1	6	4	..	2	..	..	..
Modern Languages	..	23	13	3	3	42	36	4	2	4	..	..
English and History	..	14	16	4	..	34	32	..	2	1	..	..
Modern History	..	1	4	4	2	11	7	1	3	..	..	..
Political Science and Economics	..	8	6	13	..	27	25	..	2	..	..	1
Sociology	..	..	3	1	..	4	4	..	..	..	..	..
Law	..	14	5	2	..	21	19	1	1	..	..	..
Philosophy	..	..	2	..	5	7	7	..	..	..	..	.
Philosophy(English or History Option)	..	5	5	2	2	14	10	1	3	..	..	1
Psychology	..	2	..	..	..	2	2	..	..	..	..	..
Mathematics and Physics, Div. I	..	3	7	1	..	11	7	1	3	1	..	..
Mathematics and Physics, Div. II	..	6	3	..	1	10	9	1	..	..	..	..
Mathematics and Physics, Div. III	..	1	1	1	1	4	4	..	..	..	..	..
Mathematics and Physics, Div. IV and V	..	2	3	..	..	5	5	..	..	..	..	..
Physics and Chemistry	..	3	2	..	..	5	3	1	1	..	..	..
Physics	..	..	1	..	..	1	..	..	1	..	..	..
Biology	..	1	1	1	..	3	3	..	..	..	..	..
Physiology and Biochemistry	..	2	1	3	1	7	5	2	..	..	..	..
Biological and Medical Sciences	..	16	11	2	2	31	18	2	11	..	..	..
Chemistry	..	6	5	1	3	15	9	2	4	..	..	..
Chemistry, Mineralogy and Geology, Div. II	..	..	1	1	..	2	2	..	..	..	..	..
Geology and Mineralogy	..	..	2	..	..	2	2	..	..	..	..	1
Science (General)	..	1	1	..	..	2	1	1	..	..	..	..
Household Economics	..	15	17	3	..	35	21	8	6	1	1	1
Commerce and Finance	..	11	15	6	..	32	27	5	..	2	..	1
Occasional Students	3	..	..	..	..	3	3	..	..	..	..	..
Totals	3	279	251	95	80	708	563	81	64	18	1	5

Fourth Year

Course	University of Toronto	Univ. Coll.	Vic. Coll.	Trin. Coll.	St. M. Coll.	TOTALS	Passed	Conditioned	Failed	Aegrotat	Degree without Honours
General	..	7	5	2	..	14	14	..	..	..	..
Classics	..	6	6	3	..	15	15	..	..	..	..
Greek and Hebrew	..	2	..	..	..	2	2	..	..	..	..
Latin (French or Greek Option), Div. I	..	3	..	..	2	5	5	..	..	..	..
Latin (French or Greek Option), Div. II	..	..	3	..	..	3	3	..	..	..	..
Modern Languages	..	16	18	6	3	43	42	1	..	..	..
English and History	..	16	11	2	3	32	32	..	..	..	..
Modern History	..	2	2	2	..	6	6	..	..	..	..
Political Science and Economics	..	14	11	8	..	33	33	..	..	1	..
Sociology	..	4	4	..	..	8	8	..	..	..	2
Law	..	7	3	6	..	16	16	..	..	1	..
Philosophy	..	4	2	..	4	10	10	..	..	..	..
Philosophy (English or History Option)	..	1	5	1	..	7	7	..	..	..	..
Psychology	..	3	1	..	..	4	4	..	..	..	..
Mathematics and Physics, Div. I	..	6	2	..	..	8	7	1	..	..	1
Mathematics and Physics, Div. II	..	6	1	..	2	9	8	..	1	..	..
Mathematics and Physics, Div. III	..	1	..	..	..	1	1	..	..	..	..
Mathematics and Physics, Div. IV	..	1	1	1	1	4	4	..	..	..	..
Physics and Chemistry	..	2	1	..	..	3	3	..	..	..	..
Biology	..	5	5	..	..	10	10	..	..	..	..
Physiology and Biochemistry	..	3	..	1	..	4	4	..	..	..	..
Biological and Medical Sciences	..	15	8	2	2	27	24	1	2	..	..
Chemistry	..	6	3	..	..	9	9	..	..	..	..
Chemistry, Mineralogy and Geology, Div. I	..	1	..	..	..	1	1	..	..	..	..
Chemistry, Mineralogy and Geology, Div. II	..	..	1	..	..	1	1	..	..	..	..
Geology and Mineralogy	..	..	1	..	..	1	1	..	..	..	..
Science (General)	..	..	2	..	..	2	2	..	..	..	..
Household Economics	..	20	19	4	1	44	44	..	..	..	..
Commerce and Finance	..	22	16	5	2	45	45	..	..	2	1
Occasional Students	2	..	..	..	..	2	2	..	..	..	..
Totals	2	173	131	43	20	369	363	3	3	4	4

Teachers' Course

	Passed	Conditioned	Total
May Examination	603	211	814
September Examination	321	104	425
	924	315	1,239
Duplicates			190
Totals			1,049

Faculty of Medicine

	Passed	Conditioned	Failed
First Year	92	37	30
Second Year	77	30	14
Third Year	73	29	16
Fourth Year	89	30	4
Fifth Year	96	22	5
Sixth Year	121	8	2
B.Sc. (Med.)	4	..	..
Diploma in Public Health	10	..	..
Diploma in Radiology	1	..	..
Totals	563	156	71

Faculty of Applied Science and Engineering

	Passed with Honours	Passed	Conditioned	Failed
First Year—				
Civil Engineering	..	6	7	6
Mining Engineering	..	19	12	15
Mechanical Engineering	2	10	5	10
Architecture	..	2	..	3
Engineering Physics	3	4	..	4
Chemical Engineering	5	27	29	24
Electrical Engineering	8	10	5	11
Metallurgical Engineering	1	4	3	4
Second Year—				
Civil Engineering	..	1	2	3
Mining Engineering	2	14	11	8
Mechanical Engineering	4	7	10	5
Architecture	1	4	2	..
Engineering Physics	2	2	2	1
Chemical Engineering	9	13	18	19
Electrical Engineering	1	4	5	3
Metallurgical Engineering	..	8	5	..
Third Year—				
Civil Engineering	1	4	2	1
Mining Engineering	4	7	7	3
Mechanical Engineering	3	12	4	6
Architecture	2	4	1	..
Chemical Engineering	9	20	19	8
Electrical Engineering	7	14	4	9
Metallurgical Engineering	1	3	2	..
Fourth Year—				
Civil Engineering	3	8	6	1
Mining Engineering	4	11	2	..
Mechanical Engineering	8	30	3	1
Architecture	6	3	2	..
Chemical Engineering	13	26	6	..
Electrical Engineering	15	12	3	..
Metallurgical Engineering	5	5	2	..
Fifth Year—				
Architecture	1	6	..	..
Totals	120	300	179	145

Faculty of Household Science

	Passed	Conditioned	Failed
First Year	5	3	2
Second Year	3	4	1
Third Year	23	3	2
Fourth Year	2	2	..
Occasional students	2	1	..
Supplementals	2	1	..
Totals	37	14	5

Ontario College of Education

	Passed	Failed
*High School Assistants' Course	390	..
Specialists' Courses	143	..
First Class Public School Course	78	..
Elementary Art Course	28	..
Elementary Commercial Course (passed in part)	56	..
Elementary Music Course	6	..
Elementary Physical Education Course	112	..
Intermediate Household Science Course	4	..
Librarians' Course	47	..
Bachelor of Pedagogy Course	52	..
Bachelor of Pedagogy Course (passed in part)	74	..
Number who failed in whole or part	..	163
Totals	990	163

*Many of these are included among those who passed or failed in the other courses in this list.

Faculty of Forestry

	Passed	Conditioned	Deferred	Failed
First Year	5	5	..	3
Second Year	6	..	..	1
Third Year	8	..	..	..
Fourth Year	13	..	1	..
Totals	32	5	1	4

Faculty of Music

	Passed	Conditioned	Failed
First Year	9	..	..
Second Year	7	4	2
Third Year	4	6	3
Totals	20	10	5

Faculty of Dentistry

	Passed	Conditioned	Failed
First Year	17	10	5
Second Year	30	6	1
Third Year	20	6	1
Fourth Year	35	4	..
Fifth Year	54	2	..
B.Sc. (Dent.) Candidates	1	..	..
Supplemental	1	..	..
Dental Nurses	20	..	..
Totals	178	28	7

Departments

The numbers examined in the different departments of the University, including those persons granted standing for military service, were as follows:

Arts:		
Fourth Year	369	
Third Year	708	
Second Year	823	
First Year	1,002	
Teachers' Course	1,049	
Graduates (Specialist Standing)	81	
		4,032
Medicine:		
Sixth Year	131	
Fifth Year	123	
Fourth Year	123	
Third Year	118	
Second Year	121	
First Year	159	
B.Sc. (Med.)	4	
Diploma in Public Health	10	
Diploma in Radiology	1	
		790
Applied Science and Engineering:		
Fifth Year	7	
Fourth Year	175	
Third Year	157	
Second Year	166	
First Year	239	
		744
Household Science		53
Education		762
Forestry		37
Music		35
Graduate Studies		500
Dentistry		213
Social Science		118
School of Nursing		78
Law		8
Pharmacy		218
Agriculture		127
Veterinary Science		47
Local Examinations in Music		14,109

(*i*) Admission to Degrees:

	Men	Women	Total
LL.D. (Honorary)	7	1	8
D.Sc. (Honorary)	3	...	3
Mus. Doc. (Honorary)	1	...	1
Ph.D	33	3	36
M.A	68	22	90
M.S	1	...	1
M.A.Sc	12	...	12
C.E	2	...	2
E.E	1	...	1
D.Paed	2	...	2
M.Sc.F	2	...	2
Mus. Doc	3	...	3
M.Sc. (Dent.)	2	...	2
M.S.A	1	...	1
B.A	322	335	657
B.Com	43	2	45
M.D	132	8	140
B.Sc. (Med.)	4	...	4
B.A.Sc	159	...	159
B.Arch	14	...	14
B.H.Sc	...	18	18
B.Paed	47	5	52
B.Sc.F	14	...	14
Mus. Bac	4	...	4
D.D.S	59	...	59
B.Sc. (Dent.)	1	...	1
LL.B	2	...	2
B.S.A	115	2	117
B.V.Sc	45	...	45
Phm.B	97	3	100
Totals	1,196	399	1,595

(*j*) Geographical Distribution of Students:

FACULTY OF ARTS

	University of Toronto	University College	Victoria College	Trinity College	St. Michael's College	Duplicates	Totals
Ontario: (1) Province	481	435	377	152	99	4	1,540
(2) Toronto	637	680	557	213	164	5	2,246
Nova Scotia	2	2	3	..	..	..	7
New Brunswick	1	1	..	..	1	..	3
Prince Edward Island	..	..	..	..	..	..	..
Quebec	7	5	3	1	1	..	17
Manitoba	5	5	2	4	..	..	16
Saskatchewan	7	12	4	2	1	..	26
Alberta	6	13	3	..	3	..	25
British Columbia	2	7	..	3	1	..	13
United States	4	13	3	4	81	..	105
Elsewhere	1	12	13	3	3	..	32
Totals	1,153	1,185	965	382	354	9	4,030

THE UNIVERSITY

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	School of Nursing	Occupational Therapy	Physiotherapy	Registered Twice	TOTALS
Ontario:															
(1) Province	1,540	326	311	26	510	18	15	180	91	43	197	15	12	21	3,263
(2) Toronto	2,246	477	421	24	249	13	19	257	74	49	103	18	15	46	3,919
Nova Scotia	7	4	..	..	6	..	..	21	..	5	2	..	..	1	44
New Brunswick	3	3	1	..	5	..	..	20	1	..	6	..	..	..	39
Prince Edward Island	..	2	..	..	1	..	..	4	..	2	1	..	..	..	10
Quebec	17	6	2	..	5	1	2	5	2	2	9	..	1	..	52
Manitoba	16	3	5	..	9	1	..	20	9	5	4	..	1	..	73
Saskatchewan	26	23	7	..	25	1	..	27	14	7	9	..	2	..	141
Alberta	25	8	8	..	..	1	1	11	2	4	4	..	2	1	65
British Columbia	13	20	5	2	12	1	2	16	1	2	3	3	1	1	80
United States	105	9	2	1	3	..	1	29	7	..	..	..	..	..	157
Elsewhere	32	11	5	..	4	1	..	23	17	1	11	..	..	..	105
Totals	4,030	892	767	53	829	37	40	613	218	120	349	36	34	70	7,948

THE PROVINCE OF ONTARIO

	Faculty of Arts	Faculty of Medicine	Faculty of Applied Science and Engineering	Faculty of Household Science	Ontario College of Education	Faculty of Forestry	Faculty of Music	School of Graduate Studies	Faculty of Dentistry	Department of Social Science	School of Nursing	Occupational Therapy	Physiotherapy	Registered Twice	TOTALS
Algoma	30	10	3	..	4	..	..	1	3	1	3	2	..	1	56
Brant	46	12	4	..	7	1	1	1	..	2	10	..	2	..	86
Bruce	42	4	7	..	12	..	..	5	7	2	3	..	..	1	81
Carleton	59	8	11	4	24	..	1	7	9	2	8	..	..	1	132
Cochrane	14	..	2	..	4	..	..	..	1	..	..	..	..	..	21
Dufferin	19	2	1	..	3	..	1	..	1	1	1	1	..	..	30
Dundas	6	1	2	..	3	..	..	2	1	..	..	..	..	..	15
Durham	28	3	2	..	3	..	..	4	1	..	6	..	1	..	48
Elgin	17	..	1	1	8	..	..	3	2	..	3	..	..	..	35
Essex	52	15	15	..	27	..	..	5	..	2	3	..	1	1	119
Frontenac	5	1	..	..	12	..	..	2	1	..	4	..	1	..	26
Glengarry	4	..	..	..	4	..	..	1	..	1	..	1	..	..	11
Grenville	6	6	..	..	6	..	..	..	..	2	..	..	..	..	20
Grey	55	11	1	..	11	1	..	..	3	..	6	..	..	1	87
Haldimand	13	2	3	..	8	..	..	2	..	..	1	..	1	..	30
Haliburton	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Halton	37	5	10	3	8	..	1	3	1	..	4	..	..	..	72
Hastings	23	4	3	..	8	1	..	..	4	1	2	..	..	..	46
Huron	36	3	5	1	13	..	..	5	..	1	1	..	..	1	64
Kenora	8	..	3	..	1	..	..	..	..	..	..	..	..	..	12
Kent	17	7	8	..	6	1	1	3	3	..	4	..	..	..	50
Lambton	28	8	6	2	6	..	..	5	4	..	7	2	..	..	68
Lanark	8	1	2	..	7	..	..	6	..	2	1	2	..	..	29
Leeds	11	2	..	1	8	..	..	..	1	2	1	..	..	..	26
Lennox & Addington	2	..	..	..	3	..	1	..	..	..	1	..	..	..	7
Lincoln	52	7	14	..	12	..	..	5	3	..	8	..	..	1	100
Manitoulin	1	..	1	..	..	..	..	..	..	..	..	..	..	..	2
Middlesex	9	1	2	1	44	..	..	9	..	3	5	..	1	..	75
Muskoka	14	5	1	1	2	1	1	..	..	..	2	..	..	1	26
Nipissing	15	13	2	..	7	..	..	2	1	..	10	..	..	..	50
Norfolk	12	4	4	..	1	..	..	2	6	..	..	..	..	..	29
Northumberland	18	4	2	..	11	..	..	1	..	..	5	1	..	..	42
Ontario	58	9	5	..	11	1	..	9	..	1	5	..	..	..	99
Oxford	19	7	8	1	8	..	..	5	..	1	4	..	1	1	53
Parry Sound	16	1	1	..	7	..	..	..	1	..	2	1	..	..	29
Peel	63	2	16	..	14	..	..	9	..	2	4	..	..	2	108
Perth	48	12	6	1	12	1	..	5	4	1	5	1	..	1	95
Peterborough	32	6	6	..	7	..	1	3	2	..	3	..	1	..	61
Prescott	3	1	..	..	2	..	..	..	..	..	..	..	..	..	6
Prince Edward	8	1	1	..	9	..	..	1	..	..	..	..	..	1	19
Rainy River	2	5	1	..	..	..	..	1	..	..	..	..	..	..	9
Renfrew	17	1	..	..	6	..	..	2	..	..	4	..	..	..	30
Russell	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1
Simcoe	102	16	17	3	12	..	..	4	2	2	11	2	1	1	171
Stormont	6	3	1	..	4	..	..	..	..	..	2	..	..	..	16
Sudbury	13	..	4	2	2	..	..	..	..	..	..	..	..	..	21
Thunder Bay	17	5	10	..	10	1	..	3	5	..	3	..	..	..	54
Timiskaming	32	13	10	1	4	2	..	1	4	..	10	..	..	1	76
Victoria	25	5	2	..	7	1	2	2	..	..	..	..	..	1	43
Waterloo	43	16	15	..	13	1	1	6	3	4	8	..	..	3	107
Welland	39	18	18	1	11	..	3	4	2	1	3	..	..	..	100
Wellington	52	11	13	1	16	2	1	11	2	..	7	..	..	1	115
Wentworth	69	31	30	1	60	2	..	19	10	6	11	..	..	1	238
York	189	24	32	1	22	2	..	21	4	3	14	2	2	..	316
Toronto	2,246	477	421	24	249	13	19	257	74	49	103	18	15	46	3,919
Totals	3,786	803	732	50	510	31	34	437	165	92	300	33	27	67	7,182